E4739

TAJIKISTAN

COMMUNITY SERVICES DEVELOPMENT FUND (CSDF) PROJECT

Environmental Management Framework (EMF)

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Project Management Unit
Community Services Development Fund Project
Government of Tajikistan

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LIST OF ABBREVIATIONS & ACRONYMS

BP	Bank Polices
CEP	Committee for Environmental Protection
CSDF	Community Services Development Fund
DPMO	Deputy Prime Minister's Office
DPR	Detailed Project Report
EE	Ecological Expertise
EIA	Environmental Impact Assessment (same as Environmental Assessment)
EA	Environmental Assessment
EMP	Environmental Management Plan
EMF	Environmental Management Framework
FI	Financial Institution
GOT	Government of Tajikistan
IDA	International Development Association / World Bank
IP	Indigenous Peoples
IPM	Integrated Pest Management
IR	Involuntary Resettlement
MCSDS	Municipal and Communal Services Development Strategy
MIDP	Municipal Infrastructure Development Project
NGO	Non-Governmental Organization
OP	Operational Policies (World Bank)
O & M	Operations & Maintenance
PCR	Physical Cultural Resources
PDO	Project Development Objective
PMC	Project Management Consultants (same as Supervision Consultants)
PMU	Project Management Unit of the CSDF
PIU	Project Implementation Unit (Generic reference)
PFI	Participating Financial Institution
RPF	Resettlement Policy Framework
RAP	Resettlement Action Plan
SEE	State Ecological Expertise
SC	Supervision Consultants (same as Project Management Consultants)
TA	Technical Assistance
WB	World Bank

EXECUTIVE SUMMARY

1. *Project objective*. The Project Development Objective (PDO) of the proposed project is to improve the access, quality and efficiency of basic municipal services in participating towns and rural areas through: i) harmonizing available financing aimed at developing communal services; and ii) enhancing the institutional capacity of municipalities and local utilities. The Project aims to achieve this objective by: i) focusing on infrastructure and services such as water supply, sanitation, and solid waste management, but may also include, to a limited extent, other select municipal functions; ii) supporting demand driven economically and socially justifiable local investments in municipal services delivery, and iii) strengthening the financial and administrative management of participating services providers.

2. *Project description*. The project consists of 3 Components: (1) Component A: Institutional Development; (2) Component B: Physical Investments in Pilot Municipalities; and (3) Component C: Project Management, Monitoring and Evaluation.

3. *Location.* The grant and sub-project locations will be chosen during the implementation phase. The project will be located in the urban areas and the physical investments will be made in the pilot municipalities.

4. *Project environmental category*. In accordance with the Bank's safeguard policies and procedures, including OP/BP/GP 4.01 Environmental Assessment, the project category is B. As during appraisal it is not possible to identify which sub-project or grant will be financed, it is necessary to prepare an Environmental Management Framework (EMF), which would specify all rules and procedures for the sub-projects EA.

5. *Purpose of Environmental Management Framework*. The purpose of the EMF is to provide the World Bank's and national rules and procedures for project Environmental Impacts Assessment (EIA), identify potential environmental impacts of the project (both positive and negative), to outline rules and procedure for the sub-projects environmental screening and to specify appropriate preventive actions and mitigation measures (including appropriate monitoring plan) to prevent, eliminate or minimize any anticipated adverse impacts on environment. The EMF was prepared by a local consultant engaged to do the following: (i) analysis of the existing national legal documents, regulations and guidelines; (ii) World Bank safeguard policies, as well as other WB guiding materials; and (iii) existing EMFs for similar World Bank projects.

6. *EA Institutional capacities to perform environmental safeguards*. The capacity of the Government of Tajikistan agencies – PMU, associated Government agencies; potential sub-project beneficiaries will be enhanced through this project implementation. There is need for additional capacity building activities to perform the EA-related activities and to implement the EMF provisions. In this regard, the EMF will support additional information dissemination and training activities to ensure the environmental requirements and the environmental management provisions would be fully implemented. A special attention will be paid to training of sub-project

beneficiaries, their consultants and contractors, as they play a major role in ensuring safeguard compliance during sub-project implementation.

7. *Nature & scale of environmental impacts*. The project will only support urban sub-projects of various types, i.e. water supply, sanitation, domestic wastewater / sewage, drainage / storm water, solid waste management, roads & terminals, commercial complexes, community infrastructure and electrification. Few sub-project types, e.g. large-scale solid waste disposal dump yard / landfills, may cause significant environmental impacts and fall under the Category A projects and for which a full EIA would be required. However, the majority of sub-projects might cause environmental impacts that would fall under the Category B projects in accordance with the Bank OP/BP 4.01. For these sub-projects, the EMF will require a simple and/or a partial Environmental Assessment and/or preparing an Environmental Management Plan. It is also expected that many of supported sub-projects will not have environmental impacts and will fall under the Category C (especially those related to purchasing of equipment / vehicles and/or electrification sub-projects) for which no further environmental assessment will be required. Furthermore, it is expected the selected sub-projects will not be located in protected areas, critical habitats or culturally or socially sensitive areas. This will be ensured during the sub-projects screening and EA, excluding them from the project financing.

8. *Type of environmental impacts*. The potential adverse environmental impacts of proposed types of sub-projects are summarized as follows: (a) generic construction-related impacts that include changes to air quality, water quality, land, flora, fauna and eco-systems; (b) generic health & safety, labor and public health impacts, (c) specific impacts such as groundwater and surface water contamination in the case of dump yard / landfill sub-projects; (d) specific impacts such as changes in hydrology / drainage due to laying of water or sewage pipelines; (e) specific solid waste generation arising out of new commercial complexes, markets and / or community infrastructure such as schools & hospitals. All these impacts will be site specific and temporary by nature and can be easily mitigated and managed through good projects design and implementation practices.

9. *Environment Management Framework (EMF).* This document outlines the background / context, the policy and regulatory framework, a brief description of the environmental impacts of possible sub-projects under the CSDF project, EA procedures & guidelines, institutional arrangements, and consultation and disclosure. The policy & regulatory framework includes also a section describing both measures, which will be used to ensure compliance with national laws and WB requirements. Under the EA procedures and guidelines, there are details on responsibilities for sub-project preparation, screening, appraisal, implementing and monitoring. There are also guidelines on selected sub-project types that will assist in outlining what is required in the sub-project EIA and/or EMPs as well as guidelines for proposed small-scale construction sub-projects in the form of an EMP checklist. The EMF specifies no Category A sub-projects will be supported under the project. Under institutional arrangements, the project will also support training and capacity building of sub-project beneficiaries and their consultants / contractors. Lastly, the EMF specifies the rules and procedures for the EA documents disclosure and public consultation.

A BACKGROUND

A.1 Introduction

1. The Government of the Republic of Tajikistan and the International Development Association (IDA)/World Bank are cooperating to alleviate poverty and to achieve a sustainable economic growth in the Republic of Tajikistan. To accomplish these tasks, World Bank is providing financing for development strategies, obtaining expert analysis and implementing specific projects and programs in the urban sector.

A.2 Sector Context

2. In Tajikistan, drinking water and sanitation services and infrastructure are inherited from the Soviet era and are plagued by fast deterioration, poor operation and maintenance, and weak institutional capacity. Tajikistan's municipal sector features substantial infrastructure gaps and degradation, as well as low institutional capacity, in particular in areas of urban water supply, sanitation and solid waste management. As of 2008, 94% of the urban population had access to an improved source of water supply, 83% to piped water supply. Although by official accounts 95% of urban residents have access to an improved form of sanitation, sanitary conditions in many small towns are dire. For a majority of towns such services fall under the responsibility of the KMK through its subsidiaries (branches) in the regions. Laws passed in 2009 and 2010 support the decentralization and transfer of public service responsibility from KMK to local governments. However, these are not being effectively enacted on the ground, due to various factors including the lack of capacity and sufficient funding. Most utilities are also ambiguously subordinated to both the central administration and the Mayor's office. The World Bank-financed improvements to urban services in provincial towns through the Municipal Infrastructure Development Project (MIDP) have mainly focused on water supply and solid waste management. MIDP has had a visibly positive impact on the delivery of municipal services across 8 participating towns – Dangara, Istaravshan, Kanibadam, Kulyab, Kurgan-Tube, Rasht, Vakhdat and Vose, documented by the increase of number of people provided with access to improved water source, the increase of number of hours of service and reductions in unaccounted for water.

3. As follow-on to the MIDP, the Government of Tajikistan has requested support to seting up a Communal Services Development Fund (CSDF).

A.3 Project Brief / About CSDF

4. The Government of Tajikistan (GoT) with support from the International Development Agency (IDA)/World Bank have decided to set up the CSDF to address the growing urban infrastructure needs in environmental investments (water, sanitation and solid waste management) and logistical infrastructure-city roads and transportation facilities. CSDF will function under the office of the Deputy Prime Minister, and the investments of the CSDF will be approved by a Steering Committee (SC) constituted for this purpose. A secretariat functioning under the Deputy Prime Ministers Office (DPMO) would be responsible for

project appraisals, investment recommendations, disbursements, monitoring and performance audit of the fund.

A.4 Project Objective

5. The PDO of the proposed project is to improve basic communal and municipal services in participating cities and towns. This will be achieved through i) assistance in establishment of a Communal Services Development Fund (CSDF); ii) financing grants and loans aimed at developing communal services and municipal infrastructure; and iii) enhancing the institutional capacity of local governments and local utilities.

A.5 Project components and activities

6. The project will assist the Government of Tajikistan in establishing the Communal Services Development Fund, initially as results based grant facility, but with the ultimate objective that it would transform into a capital debt facility in approximately 5-10 years. It would also provide 'seed' money for investment grants and loans to utilities and local governments for basic infrastructure sub-projects. Finally, it would provide technical assistance to a) local governments and local utilities to allow them to achieve expected results (as per the results base and move them further along the spectrum towards a point where they could possibly access loan financing; and b) national government entities to assist them in undertaking required reforms.

Component A: Establishment of the Communal Services Development Fund (IDA USD$0.25 M)

7. The component will finance activities required for the establishment of the Communal Services Development Fund. The component will finance consultant services and goods.

8. Anticipated activities include assistance to the Government for determining:

(a) the structure and institutional arrangements for the CSDF
(b) grant financing policy;
(c) loan financing policy;
(d) operational policies and procedures (including appraisal, financial management, procurement, audit, environment and social, monitoring and evaluation, disbursement)
(e) human resource policies and staffing plan

9. The World Bank will consider the fund as 'established' when the following conditions are met:

(a) decree establishing the CSDF is passed
(b) Supervisory Structure as per the decree is established;
(c) the 'Supervisory Structure' has approved all appropriate policies and procedure as described in the preceding paragraph (apart from the loan policy);

(d) required staff including for management, appraisal, procurement, audit, disbursement, safeguards etc. have been hired

10. The World Bank will conduct an assessment of the fund, once established, to determine that it is satisfied with the establishment prior to the fund managing any World Bank financing.

Component B: Grants and Loans for Basic Municipal and Communal Services Investments (IDA Financing USD $25 M)

11. The component will provide financing (results based grants and loans) for sub-project investments in participating cities & towns both prior and after the set-up of the CSDF. It will also provide assistance to participating cities and towns in developing feasibility studies for investments and in improving their results, as per the terms of the grant. The component will finance goods, works and consultants services.

12. Proposed participating cities and towns for World Bank financing include all those defined as 'cities' by TajStats in their Annual demographics report for 2013, Sections on the regions of Tajikistan (17 cities). However, Dushanbe and Khujand will be excluded based on their size, in addition to Nurek and Rogun. Instead the Towns of - Hissar, Dangara, Vose, and Farhor will also be included based on indicated Government priorities.

13. Eligible sectors would include communal and municipal services including water supply and sanitation, solid waste management, local roads, street lighting and storm water drainage. However, with regards to water supply, the project will only support the rehabilitation, improvement or minor additions or expansions of existing schemes in participating towns and cities. In addition, any new small scale water supply schemes that may draw water from an 'international waterway' will not be eligible for financing. Furthermore, cities currently being financed under the EBRD projects would not be eligible for water supply sub-projects.

Sub-Component B1: Grants and Loans to Municipalities and Utilities

14. Grants for Municipalities and Utilities: Prior to the CSDF set up, allocation under this will be 100% grants for the first 1-3 years of project implementation and will be determined as follows:

(a) investment allocation will be determined on the basis of a formula;
(b) the proposed interim formula is Population (40%) + Service Coverage (WSS +SWM) (60%)
(c) to access financing, the city/town would have to presented a yearly **Integrated Investment Plan (IIP)** jointly agreed between the vodokanals, local service providers and the Local Government.. The IIPs will be used as a basis to identify sub-project investment priorities and city allocations under this component will be shared between local governments' investment and utility needs. A series of results will be agreed with the municipality and the utility as conditions of the grant.

15. Investment sub-projects implemented prior to signing of the Project Legal documents and meeting Bank policies and procedures, will be eligible for retroactive financing of up to USD$1.0 million under this component.

16. Loans for Basic Municipal and Communal Services Investments: Subsequent to the establishment of the CSDF to the satisfaction of the World Bank, and the development of a loans policy to the satisfaction of the World Bank, the project will pilot the administration of a loan window for the Fund. This is anticipated to occur in year 4-5 of project implementation.

17. The loan window will be triggered after an institutional assessment is carried out of the repayment capacity of eligible utilities. Such financing will be limited to only performing local KMK subsidiaries/utilities. The Pilot would test and lay the ground work for future debt financing and aims to act as a catalyst for reforms in the municipal and communal services sector.

Sub-Component B2: Support for Sub-Project Design Development

18. Participating cities/towns and their service providers will receive support to prepare feasibility studies and develop detail designs[1].

Sub-Component B3: Support to Cities and Towns in achieving results as stipulated by the Results Based Grant (under Sub-Component B1)

19. Assistance will be provided to the targeted cities and town to achieve results as stipulated by the results based grant. Expected results under the grant would be tailored for each participating municipality and utility based on the chosen sub-project to be financed under the grant. However, a basic menu of results is expected to include the following:

(a) *Integrated Investments:* Cities and towns will be assisted in preparing an integrated investment proposals for accessing project financing*;*
(b) *Improved financial management:* Cities and towns will be assisted in improving their financial management through investments in accounting and billing systems [2] ; improvements in asset inventories and in strengthening internal controls and auditing;
(c) *Optimize the efficiency of local vodakanals including* reducing in water loses through wastage, and introducing more equitable application of tariff collection based on consumption and iii) improve billing and collection through a metering program;
(d) *Improved Citizens Engagement and Community Participation efforts* will support selected participating towns in ensuring community engagement for management and maintenance of investments in water supply and sanitation. This will occur in partnership with the Water and

[1] The detailed project designs are subject to EA procedures to ensure the TORs and feasibility studies outputs are consistent with the WB and national EA requirements.
[2] Note that this was piloted under MIDP-AF. It included installation of billing and collection system and procurement of mobile handheld terminals in selected towns, as well as provision of access to the infrastructure of the electronic billing kiosks.

Sanitation Program (WSP) and will involve both women and men of varying ages.

Component C: Technical Assistance (USD 1 M)

20. The component will finance technical assistance to utilities, local governments and the National Government.

Subcomponent C1: Technical Assistance to utilities and municipalities

21. This is for:

(a) *Training and Capacity Building*: Training and technical capacity building support will be provided to all utilities and municipalities to improve their capacity to implement and operate the new infrastructure that will be financed under the project, as well as to be ready to tap into the CSDF for funding by meeting the basic eligibility criteria.
(b) *Communication and public awareness campaigns in all project towns.* The project will finance public information campaigns to raise awareness on water conservation, solid waste disposal issues, and advantages of a metering program.
(c) *Surveys:* Household (HH) Baseline and Follow-Up Surveys will be carried out in all participating towns. These were initially developed under MIDP-AF and will be revised and will be revised and scaled up under CSDFP also with the collaboration of GPVDR to ensure that they are compatible with survey carried out by Tajstats, and to strengthen the ability of the project to identify the alignment of the operation with the twin goals.

Subcomponent C2: Technical Assistance to National Government

22. This will assist the national government entities in undertaking reforms including in strengthening the fiscal transfer system and the performance of the national utility.

a. Feasibility studies. This finances feasibility studies to prepare investment projects identified for financing by the donors and the World Bank. The studies should include a special section devoted to EA, specifying either the TORs or providing the EIA&EMP for sub-projects that would have potential environmental impacts.
b. TA Studies : these could included
    i. Rationalize the inter-governmental fiscal transfer system to follow a rules based formula;
    ii. strengthen the own source revenue base for Local Governments through designing and passing relevant reforms;
    iii. support with Decentralization reform
    iv. Water Supply Tariff reform
    v. Development of new energy-saving regulations along with the EA requirements for such investments.

Component D: Implementation Support (USD 3.75 M)

23. The Component will finance project management (M & E, audits etc) and operating costs for the Project Management Unit and the CSDF once it is established.

B POLICY AND REGULATORY FRAMEWORK

B.1 National environmental assessment requirements

Basic EA Laws

24. There are two laws in the country that stipulate all aspects of the EA: (a) Law on Environment Protection; and (b) Law on Ecological Expertise. The Chapter V, Articles 35-39 of the Law on Environment Protection (2011), introduces the concept of state ecological review (literally, state ecological "expertise" – SEE) which seeks to examine the compliance of proposed activities and projects with the requirements of environmental legislation and standards and ecological security of the society. The mentioned laws stipulate the mandatory cross-sectoral nature of SEE, which shall be scientifically justified, comprehensive, and objective and which shall lead to conclusions in accordance with the law. SEE precedes decision-making about activities that may have a negative impact on the environment. Financing of programs and projects is allowed only after a positive SEE finding, or conclusion, has been issued.

25. The following activities and projects will be subject to state ecological review[3]: a) draft state programs, pre-planning, pre-project, and design documentation for economic development; b) regional and sectoral development programs; c) spatial and urban planning, development, and design; d) environmental programs and projects; e) construction and reconstruction of various types of facilities irrespective of their ownership; f) draft environmental quality standards and other normative, technology, and methodological documentation that regulates economic activities; g) existing enterprises and economic entities, etc. The laws stipulate that all types of economic and other activities shall be implemented in accordance with existing environmental standards and norms and shall have sufficient environmental protection and mitigation measures to prevent and avoid pollution and enhance environmental quality. The EA studies analyzing the short- and long-term environmental, genetic, economic, and demographic impacts and consequences shall be evaluated prior to making decisions on the sitting, construction, or reconstruction of facilities, irrespective of their ownership. If these requirements are violated, construction will be terminated until necessary improvements are made, as prescribed by the Committee for Environmental Protection and/or other duly authorized control bodies, such as sanitary, geological, and public safety agencies.

Environmental Impact Assessment Rules and Procedures

[3] The Law doesn't say if all these types of activities should have a full or a simple EIA study or a simple EMP.

26. An Environmental Impact Assessment (EIA) study is a component of the State Ecological Expertise, as set out in the 2011 amendments to the Environmental Protection Law and in the Law on the State Ecological Expertise (2011). The EIA is the responsibility of the project proponent. The State Ecological Expertise for all investment projects is the responsibility of the Committee for Environmental Protection under Government of Tajikistan (CEP) and its regional offices. Furthermore, the 2011 Law on the State Ecological Expertise, have a general statement all civil works, (without taking into consideration the scale of the projects), should be assessed for their environmental impacts and the proposed mitigation measures reviewed and monitored by the CEP. At the same time the EA practice in Tajikistan shows the small scale construction or rehabilitation sub-projects are not subject to the SEE.

Types of Ecological Expertise

27. According to the 2011 Law on Ecological Expertise, ecological expertise is intended to prevent negative impacts on the environment as a result of a proposed activity, forecast impacts from activities that are not considered as necessarily damaging to the environment and create databases on the state of the environment and knowledge about human impact on the environment. This Law and the Law on Environment Protection envisage two types of ecological expertise – State ecological expertise and public ecological expertise, which are not given equal importance. While State ecological expertise is a prerequisite for beginning any activity that may have an adverse environmental impact, public ecological expertise becomes binding only after its results have been approved by a State ecological expertise body. The State Ecological Expertise is authorized to invite leading scientists and qualified outside specialists to participate in the review. Approval should be issued within 30 days, unless the project developer agrees to an extension, and remains valid for two years, if the decision is positive. For very complicated projects the term of consideration and approval can be extended till 60 days. According to the Law on SEE the public ecological expertise of economic activities or other activities implementation of which can negatively impact the environment of population which live in relevant area can be carried out by any public organization and citizen. They have right to send the proposals to the responsible government bodies concerning environmental issues of implementation planned activities; to receive information on results of conducted state ecological expertise from relevant responsible bodies. The materials reflecting the public expertise delivered to the experts' commission should be taken into consideration under preparation of conclusion of state ecological expertise and decision making on realization of expertise object. The public ecological expertise is carried out under the state registration of application of public organization. The registration can be done by local executive authorities (during 7 days) in place where the expertise activities are planned. The public organizations which are organizing this expertise, should inform the population of initiation of expertise and then on its results.

Screening categories

28. The laws on Environment Protection and EE stipulate the Government will approve a list of activities for which the full Environmental Impact Assessment is mandatory. Currently there is no EIA categorization system in place and environmental impacts of most construction activities are reviewed on a case by case basis. At the same time the these documents require an EIA that would include an mitigation and monitoring plan for more complex projects which might be considered as Category A and a special section in the design documents for simpler projects which can be attributed Category B. The projects which have insignificant can be considered as Category C. Until now there are no approved lists or criteria for environmental screening and this is done, as mentioned, on the case by case.

EA administrative framework

29. The Environmental Protection Law states that a SEE should be conducted by the CEP, which is designated as a duly authorized state environmental protection body. It has a comprehensive mandate that includes policy formulation and inspection duties. The CEP has divisions at oblast (region), city and rayon (district) level, in the form of Departments of Environmental Protection (DEPs), within the Hukumat (local administration) at each city or rayon. At the same time the SEE is done only at the national level and the levels of oblasts. A small unit in the CEP is entrusted with guiding and managing both EIA and SEE. EIA preparation is the responsibility of the proponents of public- and private-sector projects, who, in addition to complying with various environmental standards, procedures, and norms, shall meet the standards of other sectors and environmental media line agencies, such as sanitary-epidemiological, geological, water, etc.

Public participation

30. Article 12 of the Environment Protection Law proclaims the right of citizens to live in a favorable environment and to be protected from negative environmental impacts. Citizens also have the right to environmental information (Article 13), as well as to participate in developing, adopting, and implementing decisions related to environmental impacts (Article 13). The latter is assured by public discussion of drafts of environmentally important decisions and public ecological reviews. Public representative bodies have an obligation to take into consideration citizens' comments and suggestions. The Law on the EE also provides the rights to the citizens to conduct a Public Environmental Expertise (art. 7). On 17 July 2001 Tajikistan acceded to the 1998 Aarhus Convention, the provisions of which have priority over domestic law that also stipulates the rights for Public EE.

Licenses

31. Licenses are legal instruments to regulate certain potentially hazardous activities where minimal qualifications and strict adherence to rules are required to ensure that they are carried out efficiently, safely and do not result in potentially very significant and irreparable damage to the environment and human health . In particular, licenses are required for handling hazardous waste;

for activities in industrial safety, sources of ionizing radiation, production and handling of pesticides and other agrochemicals. They are issued by the relevant industry regulator (ministry or committee) or an entity to which it has delegated such right. Licensing is also used to ensure the most efficient and sustainable use of natural resources. For example, licenses are required for prospecting, collecting or extracting mineral resources, or for constructing underground facilities not related to mining.

Environmental permits

32. Permits are meant to ensure the sustainable use of natural resources. There are two types of permits: (a) permits to use natural resources; and, (b) permits for emissions or discharges. The natural resources use permits allow their holders to take a certain number or amount of a particular natural resource within a defined territory and time period. They are issued both to individuals (e.g. to hunt a particular species of animal or harvest particular factories) and to organizations (e.g. permits to extract ground or surface water for a particular use). By law, permits are needed for any commercial use of any resource. The authority that issues the permit and the legislation (government resolution) that applies depend on the resource. Permits to discharge polluted matter are issued by the relevant inspectorate departments of CEP (e.g. Water Department (Inspectorate) or Air Department (Inspectorate) of the Committee's local environmental protection departments to industrial or agricultural enterprises and municipal utilities that release by-products into the environment. The permits allow releasing a certain amount of polluted matter (gases, liquids, solid waste) into the environment. The permits are normally granted for one year and indicate the maximum allowed concentration of the pollutants in the released matter, the maximum volume of the polluted matter and the pollutants allowed.

Environmental norms and standards

33. Norms are set for air and water pollution, noise, vibration, magnetic fields and other physical factors, as well as residual traces of chemicals and biologically harmful microbes in food. The exceeding of their thresholds results in administrative action, including financial sanctions. Several ministries determine environmental quality standards, each in its field of responsibility. For example, admissible levels of noise, vibration, magnetic fields and other physical factors have been set by the Ministry of Health.

Implementation and compliance

34. A number of legal acts establish liability for violations of environmental laws, which can be enforced by several State bodies. In particular, the 2010 Code of Administrative Violations establishes administrative liability for organizations, their officers and individuals for a range of violations, from the careless treatment of land to violation of the rules for water use or water protection or failure to comply with a State ecological expertise. The administrative sanctions for environment related violations can be imposed by the administrative commissions of hukumats, courts, the CEP's inspectors, the Veterinary Inspectors of the Ministry of Agriculture, and the State Committee for Land

Management and Geodezy. The most common administrative sanction is a fine of up to 10 minimal monthly salaries for individuals and up to 15 minimal salaries to officers of organizations. The 1998 Criminal Code covers crimes against ecological safety and the environment, such as violations of ecological safety at work, poaching, and spoiling land, violation of rules for the protection and use of underground resources. The maximum fine is up to 2,000 minimal monthly salaries and the maximum sentence is up to eight years in prison.

B.2 National Regulatory framework for environmental protection

35. Tajikistan has developed during last decade most of the needed environmental laws and regulations. Refer the following table.

Table 1 Selected Applicable Environment-related Legislation

Air quality
• Law on Air Protection
• Law on Hydro-meteorological Activity
Mineral resources
• Law on Mineral Waters
• Water Code
Land management
• Land Code
• Law on Land Administration
• Law on Land Valuation
Health and safety
• Law on Securing Sanitary and Epidemiological Safety of the Population
• Law on Industrial Safety of Hazardous Installations
• Law on Radiation Safety
Waste
• Law on Production and Consumption Waste

These laws along with the Regulations approved by the GoT create a favorable legal framework for environmental protection in the country as well as for usage and protection of its natural resources.

B.3 World Bank's Safeguard Policies

36. There are key 10 Environmental and Social World Bank Safeguard Policies which are intended to ensure that potentially adverse environmental and social consequences of projects financed by Bank are identified, minimized and mitigated. World Bank Safeguard Policies have a three-part format: Operational Policies (OP) - statement of policy objectives and operational principles including the roles and obligations of the Borrower and the Bank, Bank Procedures (BP) - mandatory procedures to be followed by the Borrower and the Bank, and Good Practice (GP) - non-mandatory advisory material. World Bank's Safeguard Policies and their relevance to the proposed project are analyzed in the following table.

Table 2. Safeguard Policies and their relevance

Safeguard Policies	**Relevance**
Environmental Assessment (OP/BP 4.01) This policy aims to ensure that projects proposed for Bank financing are environmentally and socially sound and sustainable; to inform decision makers of the nature of environmental and social risks; to increase transparency and participation of stakeholders in the decision-making process	This policy will be applicable. The proposed project would support mostly water supply, sanitation, solid waste management, as well as other demand driven economically and socially justifiable local investments in municipal services delivery, which might generate environmental and social impacts. While the environmental issues associated with their implementation in most cases will be minor, short-lived, and primarily limited to the project sites (except for movement of equipment and materials to/from the site), it is possible they might be also significant and would affect the environment and health of population. These issues are primarily: dust, noise, water pollution, disposal of waste material and/or older equipment, some traffic disruption (depending upon specific location), worker safety (e.g. welding operations) etc. All these impacts will be addressed with good engineering and construction practices as well as with preparing and implementing adequate mitigation measures. For that purpose it was designed an EMF which specifies the rules and procedures for the subprojects EA, including special guidelines on conducting environmental screening, proposed mitigation and monitoring activities for different types of potential sub-projects. The project will also bring positive social impacts as the proposed activities would improve social conditions for the population and would contribute to improving local population livelihoods.
Natural Habitats (OP/BP 4.04) This Policy aims to safeguard natural habitats and their biodiversity; avoid significant conversion or degradation of critical natural habitats, and to ensure sustainability of services and products which natural habitats provide to human society.	No. There will be no sub-projects involving conversion of areas, which are important wildlife habitat and/or would have impacts on them – such subprojects will be excluded from the project financing during environmental screening.
Forestry (OP/BP 4.36) This Policy is to ensure that forests are managed in a sustainable manner; significant areas of forest are not encroached upon; the rights of communities to use their traditional forest areas in a sustainable manner are not	No – There will be no sub-projects that would have impacts on forests, - such subprojects will be excluded from the project financing during environmental screening.

Safeguard Policies	Relevance
compromised	
Pest Management (OP 4.09) This policy is to ensure pest management activities follow an Integrated Pest Management (IPM) approach, to minimize environmental and health hazards due to pesticide use, and to contribute to developing national capacity to implement IPM, and to regulate and monitor the distribution and use of pesticides.	Not applicable
Physical Cultural Resources (OP/BP 4.11) This policy is to ensure that: Physical Cultural Resources (PCR) are identified and protected in World Bank financed projects; national laws governing the protection of physical cultural property are complied with; PCR includes archaeological and historical sites, historic urban areas, sacred sites, graveyards, burial sites, unique natural values; implemented as an element of the Environmental Assessment	No. The project will not finance any road subprojects that might have impacts on such resources, - such subprojects will be excluded from the project financing during environmental screening.
Indigenous Peoples (OP/BP 4.10) Distinct, vulnerable, social and cultural group attached to geographically distinct habitats or historical territories, with separate culture than the project area, and usually different language. The Policy aims to foster full respect for human rights, economies, and cultures of IP, and to avoid adverse effects on IP during the project development.	Not applicable for Tajikistan
Involuntary Resettlement (OP/BP 4.12) This policy aims to minimize displacement; treat resettlement as a development program; provide affected people with opportunities for participation; assist displaced persons in their efforts to improve their incomes and standards of living, or at least to restore them; assist displaced people regardless of legality of tenure; pay compensation for affected assets at replacement cost; the OP Annexes include descriptions of Resettlement Plans and Resettlement Policy Frameworks	Yes. As subprojects implementation might result in resettlement, the client has prepared a Resettlement Policy Framework that would be followed during the implementation phase.
Safety of Dams (OP/BP 4.37) This Policy is to ensure due consideration is given to the safety of dams in projects involving construction of new dams, or that may be affected by the safety or performance of an existing dam or dams under construction; important considerations are dam height & reservoir capacity	Not applicable
Projects on International Waterways (OP/BP 7.50) The Policy aims to ensure that projects will	AOP 7.50 is triggered because some water supply and wastewater sub-projects are likely to be on international

Safeguard Policies	Relevance
neither affect the efficient utilization and protection of international waterways, nor adversely affect relations between the Bank and its Borrowers and between riparian states	rivers. Most of the water supply investments are expected to involve rehabilitation, and of existing networks within the original boundaries and design parameters of the schemes. No new abstraction is expected. It will not adversely change the quality or quantity of water flows to the other riparians; and it will not be adversely affected by the other riparian's Consequently, an exception to the external notification requirements of OP 7.50, set forth in paragraph 7(a) for the CSDFP has been requested.
Disputed Areas (OP/BP 7.60) The Bank may support a project in a disputed area if governments concerned agree that, pending the settlement of the dispute, the project proposed for one country should go forward without prejudice to the claims of the other country.	No. There will be no sub-projects in disputed areas.
Disclosure Policy (BP 17.50) supports decision making by the borrower and Bank by allowing the public access to information on environmental and social aspects of projects and has specific requirements for disclosure	Yes. The EMF will be disclosed and consulted in the country before project appraisal and will be also disclosed in the WB Infoshop.

37. In accordance with the Bank's safeguard policies and procedures, including OP/BP/GP 4.01 *Environmental Assessment*, the project is classified as Category B. A Category B environmental assessment examines the project's potential negative and positive environmental impacts and recommends measures to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance. As before Appraisal it is not possible to identify which subprojects will be financed, the appropriate EA instrument is the Environmental Management Framework (EMF) which would specify all rules and procedures for the sub-projects Environmental Assessment (EIA).

38. The EMF will serve as a guide to the EA process. This will provide guidance on the following: (a) the national and World Bank EA rules and procedures; (b) potential environmental and social impacts associated with the proposed investments: (c) guidelines on conducting sub projects EA including mitigation measures and monitoring activities for different types of activities; roles and responsibilities in EA process and in supervision and reporting; (d) EIA and/or EMP and EMP Checklist to be applied within the EA process; and (e) capacity building activities to ensure an efficient EMF implementation. Based on the EMF, EIAs and/or EMPs will be prepared for each category B sub-project. This will be disclosed and consulted in the selected municipalities as well as submitted to the Tajikistan State Ecological Expertise for their approval. Before

appraisal, the EMF will be disclosed and consulted in the country and in selected participating municipalities.

B.4 World Bank Screening and Categorization

Screening

39. Environmental Screening is a Mandatory Procedure for the Environmental Assessment according to the WB OP/BP 4.01. The Bank undertakes environmental screening of each proposed project for which it will provide funding in order to determine the appropriate extent and type of the Environmental Assessment to be conducted. The Bank classifies a proposed project into one of four categories, depending on the type, location, sensitivity and scale of the project and the nature and magnitude of its potential environmental impacts. These four Categories are A, B, C, and FI.

- Category A projects is likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. These impacts may be sensitive, irreversible, and diverse, with attributes such direct pollutant discharges large enough to cause degradation of air, water, or soil; large-scale physical disturbances of the site and/or surroundings; extraction, consumption, or conversion of substantial amounts of forest and other natural resources; measurable modifications of hydrological cycles; hazardous materials in more than incidental quantities; and involuntary displacement of people and other significant social disturbances. The impacts are likely to be comprehensive, broad, sector-wide, or precedent-setting. Impacts generally result from a major component of the project and affect the area as a whole or an entire sector. They may affect an area broader than the sites or facilities subject to physical works. The EA for a Category A project examines the project's potential negative and positive environmental impacts, compares them with those of feasible alternatives (including the "without project" scenario), and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance. For a Category A project, the borrower is responsible for preparing a report, normally a full Environmental Impact Assessment (or a suitably comprehensive regional or sectoral EA).
- Category B projects has potential adverse environmental impacts on human populations or environmentally important areas - including wetlands, forests, grasslands, and other natural habitats - which are less adverse than those of Category A projects. These impacts are site-specific; few if any of them are irreversible; and in most cases mitigation measures can be designed more readily than for Category A projects. The scope of EA for a Category B project may vary from project to project, but it is narrower than that of Category A assessment. Like Category A, a Category B environmental assessment examines the project's potential negative and positive environmental impacts and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and

improve environmental performance. The findings and results of EA for Category B projects are described in the Project Appraisal Document.

- Category C. An EIA or environmental analysis is normally not required for Category C projects because the project is unlikely to have adverse impacts; normally, they have negligible or minimal direct disturbances on the physical setting. Professional judgment finds the project to have negligible, insignificant, or minimal environmental impacts. Beyond screening, no further EA action is required.
- Category FI. A Category FI project involves investment of Bank funds through a financial intermediary, in subprojects that may result in adverse environmental impacts.

40. General examples of projects that fall under Categories A, B, and C are provided in the Table 3 below. However, this list is just a good starting point and framework for the screening decision. Because of other factors involved such as project sitting, the nature of impacts, and the need for the EA process to be flexible enough to accommodate them, the lists should not be used as the sole basis for screening.

Table 3. Indicative types of projects under the World Bank's Categories A, B & C

Category A Projects (*projects/project components which may have diverse and significant impacts – normally require a full EIA)*	**Category B Projects** *(projects/project components which may have diverse and significant impacts – more limited environmental assessment is appropriate)*	**Category C Projects** *(projects which are unlikely to have direct adverse impacts – no EIA is required)*
Dams and reservoirs; Forestry production projects; Irrigation, drainage and flood control (large scale); Industrial plants (large scale*) and industrial estates, including major expansion, rehabilitation, or modification; Aquaculture and mariculture (large scale); Land clearance and leveling; Mineral development Port and harbor development; Reclamation and new land development; Resettlement and all projects with potentially major impacts on people; River basin development; Thermal and hydropower development;	Agro-industries (small scale); Electrical; transmission; Irrigation and drainage (small scale); Renewable energy; Rural electrification; Tourism; Rural water supply and sanitation; Urban development projects. Watershed projects (management or rehabilitation); Rehabilitation, maintenance, and upgrading projects (small-scale); Protected areas and biodiversity conservation; Rehabilitation or modification of existing industrial facilities (small scale); Rehabilitation of highways or rural roads; Energy efficiency and energy	Family planning; Nutrition; Institutional development; Technical assistance; Most human resource projects

Category A Projects (*projects/project components which may have diverse and significant impacts – normally require a full EIA)*	**Category B Projects** *(projects/project components which may have diverse and significant impacts – more limited environmental assessment is appropriate)*	**Category C Projects** *(projects which are unlikely to have direct adverse impacts – no EIA is required)*
Manufacture, transportation, and use of pesticides or other hazardous and/or toxic materials	conservation	

Note: *Large scale here is defined as enterprises with annual sales of US$ 3 million or more equivalent

Categorization of this project

41. Based on the available information, this project is classified as Category B as per the World Bank policies. This selection of the category is based on professional judgment and information available at the time of project identification. However, if the project is modified or new information becomes available, Bank EA policy permits to reclassify a project. For example, a Category B project might become Category A if new information reveals that it may have diverse and significant environmental impacts when they were originally thought to be limited to one aspect of the environment. In such case the current EMF will be adequately modified to cover the Category A sub-projects. In such cases it will be also necessary to conduct the first grade project restructuring.

B.5 WB Public Consultation and Disclosure requirements

42. For all Category A & B projects proposed for WB financing, during the EA process, the borrower consults all involved parties, including project-affected groups and local nongovernmental organizations (NGOs) about the project's environmental aspects and takes their views into account. The borrower initiates such consultations as early as possible.

43. For Category A projects, the borrower consults these groups at least twice: (a) shortly after environmental screening and before the terms of reference for the EA are finalized; and (b) once a draft EA report is prepared. In addition, the borrower consults with such groups throughout project implementation as necessary to address EA-related issues that affect them. For meaningful consultations between the borrower and project-affected groups and local NGOs, the borrower provides relevant material in a timely manner prior to consultation and in a form and language that are understandable and accessible to the groups being consulted. For a Category A project, the borrower provides for the initial consultation a summary of the proposed project's objectives, description, and potential impacts; for consultation after the draft EA report is prepared, the borrower provides a summary of the EA's conclusions. In addition, for a Category A project, the borrower makes the draft EA report available at a public place accessible to project-affected groups and local NGOs.

44. Any Category B, EA report, including EIA and/or EMPs for a project proposed for WB financing is made available to and consulted with the project-affected groups and local NGOs. Public availability of the consulted EA document in the borrowing country and official receipt by the Bank of Category A reports for projects proposed for WB financing, and of any Category B EA report for projects proposed for WB funding, are prerequisites to Bank appraisal of these projects. In this case, being a Category B project, as the specific sub-projects to be funded under the CSDF project are yet to be identified, the EMF will be the EA report that will be made available.

B.6 Comparison of National and World Bank EA requirements

45. While the basic provisions of the National EA rules and procedures are to some extent similar to the WB requirements, there are several important differences. These differences are related primarily to the following: (a) project environmental screening categories; (b) Environmental Management Plan; (c) EA disclosure and public consultation; and (d) EA reviewing process.

- Differences in screening categories: As mentioned earlier, currently there is no clear EIA categorization system in Tajikistan. The SEE law stipulates all projects with a potential environmental impact should have in the project design an assessment of the potential impacts as well as a set of mitigation measures. Thus, as the project will support urban development activities which have more or less significant environmental impacts, all of supported subprojects would require environmental assessment and respectively - ecological expertise. The projects which do not require an EA mainly correspond activities which are expected to have minor impacts on environment and therefore do not need to be passed through the formal procedures of EIA and SEE (subprojects that propose purchasing equipment and machinery or electrification activities, - WB Category C projects). In some cases the CEP may decide to have an EIA while in other – a simple EMP, although there are clear criteria for such decisions to be undertaken. The scale of the project EA is decided in each concrete case by the SEE/Ecological Inspectors during the preliminary approval of the project location and of its technical specifications. *In the case where World Bank and national categorization/EA requirements differ, the more stringent requirement will apply. This refers mostly in the case of deciding about which category should be attributed to the subprojects (either B or C) - the national EA legislation doesn't refer to small scale activities, including construction and rehabilitation of various buildings which per national legislation this might Category C while according to the WB requirements these are category B sub-projects. In these cases the client will apply the WB criteria.*

- Differences concerning EMP: While the national legislation requires for all projects with potential environmental impacts relevant mitigation measures, it doesn't require a special EMP which should specify, along with the proposed mitigation activities a monitoring plan and reporting requirements, institutional arrangements for EMPs implementation as well as doesn't require needed capacity building activities and necessary expenses in this

regard. Similarly, *in the case of Category B grant and subprojects, the beneficiaries will be required to apply WB rules and prepare not a list of mitigation measures but EMPs.*

- Differences concerning reviewing and approval of EA studies: As mentioned earlier, the national EA reviewing process relates to the SEE, while according the WB requirements is a part of the whole EA process. The SEE seeks to examine the compliance of proposed activities and projects with the requirements of environmental legislation and standards and ecological security of the society. The mentioned laws stipulate the mandatory cross-sectoral nature of SEE, which shall be scientifically justified, comprehensive, and objective and which shall lead to conclusions in accordance with the law. SEE precedes decision-making about activities that may have a negative impact on the environment. Financing of programs and projects is allowed only after a positive SEE finding, or conclusion, has been issued. The SEE is conducted by a special Unit within the SCEPF which overall looks quiet stringent. At the same time, in order to ensure the EA documents review is done appropriately, *in addition to the SEE the WB will conduct its own review for the first three sub-projects and that the relevant EA capacities have been built within the PMU and CSDF*.
- Differences with regard to disclosure and public consultation: Conducted analysis shows there is no harmonization between World Bank and national requirements in this regard. According to national legislation, the EA disclosure and public consultation is allowed but not mandatory. At the same time, per the SEE law the public might organize at its own initiative a public ecological expertise. Public expertise is being conducting on the basis of NGO's written request toward local public authority. While organizing such expertise, within seven days, the local public authorities should inform public association about taken decision concerning permission to do so. Public associations conducting ecological expertise are obliged to inform broad local public about beginning of expertise and its results. These associations have the right to obtain planned and project documentation as well as documentation on EIA and get acquainted with normative-technical documentation on conducting of the state ecological expertise. The results of public ecological expertise are delivering to the bodies conducting the state ecological expertise and to the bodies which make decision of implementation of activity – the subject of expertise. The results and conclusion of public ecological expertise have recommendation character and can have the juridical power only after their approval by the responsible state body in field of ecological expertise. The results of public ecological expertise can be published in mass-media, deliver to the local public authority, other stakeholders. In the case of World Bank EA policy, the Sub-borrower is responsible for conducting at least one public consultation for all Category B projects to discuss the issues to be addressed in the EMP or to discuss the draft EMP itself. Therefore, for the Sub-project, the PIU will review any documentation of the public consultation conducted in the preparation of any national EA documentation to determine if it is consistent with the World Bank requirements. If the Tajik public consultation is satisfactory, there would be no further consultation requirement. However, *if no public consultation was conducted or the PIU determines that the Tajik public consultation documentation is not adequate, the sub-borrower will be*

required to perform at least one public consultation to discuss the environmental issues of concern to the locally affected communities and include these issues in the content of the EMP. Documentation for the consultation should be submitted to the PIU as part of the Sub-project file. Tajik/Russian language version of the EMP and the record of the public consultation should be located at in public location near the project site and, if available - on the sub-borrower website. Category B EA sub-project would be made available to project-affected groups and local NGOs in an easily accessible PFI and/or PIU website.

C ENVIRONMENTAL IMPACTS OF SUB-PROJECTS PROPOSED TO THE CSDF

C.1 Introduction

46. The sub-projects to be funded by the CSDF project will enhance the general living standards within urban areas or they will have associated impacts on the local environment and people/society. Based on the experience of the past project and other similar projects, this section addresses environmental (i.e. air, water, land, noise, flora, fauna, health & safety and labour (forced and child) issues that can arise in urban infrastructure projects.

C.2 Water Supply

47. Environmental impacts: In this sub-sector, the possible sub-projects include water abstraction and treatment plants, installing of overhead tanks, laying of water supply pipe networks and supporting water tankers/vehicles. Of these, water abstraction will have to be done to ensure that the water drawn is not depriving any other water use application and where the abstraction does not exceed the recharge rates (this should be confirmed in the sub-project EIA with hydrological study which would investigate this possibility). Also, the treatment plants may result in certain waste generation – mostly non-hazardous – that will have to be disposed in an environmentally responsible manner. In all these sub-projects, the construction-related environmental impacts will have to be managed. Disturbances to other urban services lines during the construction activity also deserve consideration. Possible changes in local hydrology when the water supply pipe network is laid. These are minor and reversible in nature. Leakage during the operational phase is an environmental impact in terms of resources being wasted, and creating water logging.

C.3 Sanitation

48. Environmental impacts: In this sub-sector, the possible sub-projects include the construction of public toilets / conveniences, supporting septic tanks at the user end, purchase of septage collection vehicles and oxidation ponds for final septage disposal. The public toilets have environmental impacts in terms of generating domestic sewage that need to be connected to the sewer network or should necessarily have a septic tank & soak pit, and are away from any water abstraction source. Oxidation ponds should be located away from the cities so

that enough area and time is available to ensure the post-treatment the disposal is environmentally responsible.

C.4 Domestic Waste water / Sewage

49. Environmental impacts: The possible sub-projects include laying sewage pipe networks and installing sewage pumping stations. Environmental issues that can arise in these sub-projects include changes in hydrology and drainage patterns due to the construction, surface and groundwater contamination due to leakages, water-logging during operation & maintenance and disposal of sludge as solid waste dumps. Establishing sewage treatment plants are outside the purview of this project.

C.5 Drainage / Storm water

50. Environmental impacts: In this sub-sector, the possible sub-projects include (i) new drains – open/closed (excepting those which empty into a sensitive water receptor), (ii) expanding/widening of existing drains and (iii) rehabilitation of existing drains. This may cause changes in land use, hydrology impacts and drainage patterns due to construction, waterlogging, change in surface/groundwater quality due to leakages and disturbance to other service lines due to digging and construction.

C.6 Solid Waste Management

51. Environmental impacts: In this sub-sector, the possible sub-projects include minor works pertaining to existing dump yards/landfills, removal of informal dumps, solid waste transfer stations, solid waste collection vehicles and solid waste processing facilities (including composting). As all of these sub-projects dealing with the collection or transfer or disposal of wastes, there are environmental impacts that have to be addressed. Also, if the sub-project is accompanied by closure of existing "wild" dumps, there can be environmental and social issues associated with that, including impacts on ground water, soil, labor safety, etc. For instance, a dump yard/landfill will result in leaching of the groundwater and therefore requires leachate collection and treatment. All of the impacts are reversible and can be properly managed with appropriate mitigation measures.

52. In dump yards/landfills, change in hydrology and drainage due to garbage dumping and composting have to be considered. The smell from decomposing garbage has to be reckoned with. The public health nuisance during maintenance due to decomposing garbage and the change in urban aesthetics have to be considered.

53. Establishing landfills are outside the purview of this project as the funds required are large and cannot be accommodated.

C.7 Roads & terminals

54. Environmental impacts: In this sub-sector, the possible sub-projects include new road alignments, widening of existing roads, re-topping of road surfaces, new bridges, rehabilitation of existing bridges/culverts, footpaths, road dividers, bus/transport terminals, street furniture and car parking terminals. The environmental impacts are minor and reversible, and most of them are construction-related. In road sub-projects, changes in hydrology and drainage patterns due to construction, increase in air pollution and noise levels due to traffic congestion, disturbance to other services and destruction of roadside microhabitat/vegetation due to widening and construction have to be considered.

C.8 Community Infrastructure

55. Environmental impacts: In this sub-sector, the possible sub-projects include rehabilitation of hospitals, housing, parks, schools and playgrounds. Environmental impacts will be negligible. Those that may occur include change in land use, solid and hazardous (particularly, biomedical waste), public health and safety.

C.9 Electrification

56. Environmental impacts: As a part of electrification, the sub-projects are underground cabling, overhead cabling and erecting transmission & distribution stations to widen access or improve the quality of power. All of these projects will include largely construction-related impacts that are minor and reversible.

C.10 Summary of sub-project potential impacts and mitigation measures

57. The following table includes a compilation of the sub-project types, impacts and possible mitigation measures.

Table 4. Summary of sub-project wise impacts & mitigation measures

No.	Sub-project type	Impacts	Mitigation Measures
A	Water supply	Construction-related impacts* in pipelines & treatment plants Changes in hydrology / drainage in pipeline networks Water leakages	EHS management during construction Providing alternative drainage flows Preventive and Corrective Operation & Maintenance
B	Sanitation	Construction-related impacts Groundwater contamination and smell	EHS management during construction Location of the septage ponds (away from habitation) and EHS management during operations
C	Domestic Waste Water / Sewage	Construction-related impacts in pipelines & treatment	EHS management during construction

No.	Sub-project type	Impacts	Mitigation Measures
		plants Changes in hydrology / drainage in pipeline networks	 Design provisions for alternative drainage flows
D	Drainage / Storm Water	Construction-related impacts Changes in hydrology / drainage in roads	EHS management during construction Design provisions for alternative drainage flows
E	Solid Waste Management	Construction-related impacts for dumpyards & landfills Air pollution, smell, ground & surface water pollution	EHS management during construction HDPE lining, Leachate treatment and EHS management during operations
F	Roads & Terminals	Construction-related impacts Changes in hydrology / drainage in roads Increased air & noise pollution due to traffic increases Tree cutting and green cover destruction	EHS management during construction Design provisions for alternative drainage flows Air & noise monitoring, and noise barriers Tree transplantation and compensatory plantation / green cover
G	Community Infrastructure	Construction-related impacts Change in land use Solid waste generation Bio-medical waste from hospitals	EHS management during construction Compliance to land use plans Solid waste management Bio-medical waste treatment such as incineration / autoclaving
H	Electrification	Construction-related impacts	EHS management during construction

*Note: Construction related impacts include environment (air, water, land, noise, flora & fauna), health & safety and labor (forced and child).

C. 11. Potential Environmental Impacts of Feasibility Studies and sub-project design

58. As mentioned above the second project component would provide support for a series of TA and consultancy activities with regard to conducting feasibility studies and supporting investment sub-projects design. While none of these activities will have any direct environmental impacts some of them, indirectly might generate some impacts during the implementation phases. Considering these factors, it is necessary to conduct their preliminary environmental assessment and identify possible areas for improving environmental performances of proposed sub-projects as well as by identifying opportunities for sound environmentally and/or socially positive alternatives (e.g., energy efficiency, recycling and reducing waste generation, etc.).

D EA PROCEDURES & GUIDELINES

D.1 Sub-project Screening and Categorization

Environmental screening

59. Screening of each proposed sub-project for funding to the CSDF project is to be undertaken in order to determine the appropriate extent and type of EA that is to be done. The attribution of the project type to WB's EA category and respectively, environmental risk that might be generated (i.e., high risk – by the Category A projects; from moderate to low risk – by the Category B projects, and from low to no risk - by the Category C projects) is applied to the sub-project as well. Generally the significance of impacts and the selection of screening category accordingly, depend on the type and scale of the project, the location and sensitivity of environmental issues, and the nature and magnitude of the potential impacts.

Negative List

60. In terms of type and scale of the sub- projects: Usually the following sub-projects are considered as having "significant" impacts and respectively should be qualified as category A projects: (a) significantly affect human populations or alter environmentally important areas, including wetlands, native forests, grasslands, and other major natural habitats; (b) "significant" potential impacts might be also considered the following: direct pollutant discharges that are large enough to cause degradation of air, water or soil; (c) large-scale physical disturbance of the site and/or surroundings; (c) extraction, consumption, or conversion of substantial amounts of forest and other natural resources; (d) measurable modification of hydrologic cycle; and (e) hazardous materials in more than incidental quantities. It is expected the supported sub-projects will be not related to these circumstances and therefore will not have significant environmental impacts. In case such a sub-project is presented to the CSDF project for financing, these will be rejected. Further, no new landfills or substantial renovation of existing landfills will be done under the CSDF project. No large water supply or sewage treatment works will also be implemented under the CSDF project. Furthermore, all proposed sub-projects that might be located in or in the vicinity of the environmentally sensitive areas based on what they can be qualified as Category A also will be excluded from the CSDF financing.

61. In terms of location*:* There are a number of locations which should be considered while deciding to qualify the sub-project as category "A": (a) in or near sensitive and valuable ecosystems — wetlands, wild lands, and habitat of endangered species; (b) in or near areas with archaeological and/or historical sites or existing cultural and social institutions; (c) in densely populated areas, where resettlement may be required or potential pollution impact and other disturbances may significantly affect communities; (d) in regions subject to heavy development activities or where there are conflicts in natural resource allocation; along watercourses, in aquifer recharge areas or in reservoir catchments used for potable water supply; and on lands or waters containing

valuable resources (such as fisheries, minerals, medicinal plants, prime agricultural soils) where there is potential for contamination of sensitive ground or surface water. Similarly as above, the CSDF project will not support any sub-projects located in the proximity of mentioned areas.

62. In terms of sensitivity: This is in the case when the sub-project might involve activities or environmental features that are always of particular concern to the Bank as well as to the borrower. These issues may include (but are not limited to): conversion of wetlands, potential adverse effects on protected areas or sites, involuntary resettlement, impacts on international waterways and other transboundary issues, and toxic waste disposal. The CSDF project will not support such sub-projects.

63. In terms of magnitude: There are a number of ways in which magnitude can be measured, such as the *absolute amount* of a resource or ecosystem affected, the *amount affected relative to the existing stock* of the resource or ecosystem, the *intensity* of the impact and its *timing* and *duration*. In addition, the *probability of occurrence* for a specific impact and the *cumulative impact* of the proposed action and other planned or ongoing actions may need to be considered. Taking into account the scale of the proposed subprojects, it is expected the magnitude of their environmental impacts will be also quiet low and thus they usually will be considered as category B projects. Otherwise, these will not be funded under the CSDF project.

Categorization of sub-projects

64. If the sub-project does not fall in the negative list, this will be considered under the CSDF project. The sub-projects will be classified as A or B or C based on the type of EA that requires to be done:

- Category A sub-projects are those that will involve serious impact on the environment and there is a need for a full EA.~~.~~ These sub-projects will be outside the purview of this CSDF project.
- Category B sub-projects are those that involve certain environmental impact which needs an environmental management plan.
- Category C sub-projects have no environmental impact.

The sub-project categorization will be based on the following table of standard urban sub-projects.

Table 5. Environmental classification of standard urban sub-projects

No.	A (Full EA)	B (Limited EA)	C (No sub-project EA)
A	**Water supply**		
	Large River intake works	Water abstraction and treatment plants	Overhead tanks
	Large Water supply networks	Small Water supply networks	Water tankers / vehicles
B	**Sanitation**		
		Public toilets	Septage Collection

No.	A (Full EA)	B (Limited EA)	C (No sub-project EA)
			Vehicles
		Oxidation Ponds	Septic Tanks
C	**Domestic Waste Water / Sewage**		
	Large Sewage treatment plants or those located within eco-sensitive areas	Sewage pumping stations	
		Small-sized sewage treatment plants outside eco-sensitive zones.	
		Sewerage pipe networks	
D	**Drainage / Storm water**		
		Expanding / Widening of existing drains	Rehabilitation of existing drains
		New drain – open / closed - alignments	
E	**Solid Waste Management**		
	Dumpyards / landfills	Solid Waste Transfer Stations	Solid Waste Collection Vehicles
	Solid waste processing facilities (incl. composting)	Clearing of informal dumps	
		Fencing of dump yards or landfills	
F	**Roads & Terminals**		
		Widening of existing roads	Re-topping of road surfaces
		New road alignments	
		Rehabilitation of existing bridges / culverts	Footpaths
		New bridges	Road dividers
		Bus / transport terminals	Street Furniture
		Car parking terminals	
G	**Community infrastructure**		
		Rehabilitation of Housing	Parks
		Rehabilitation of Schools	Playgrounds
		Hospitals	
H	**Electrification**		
		Underground electric cabling	Overhead electric cabling
			Transmission & Distribution stations

65. If the proposed sub-project does not fall in the sub-projects listed in the earlier table, then the classification will be done by the PMU in consultation with the State Ecological Expertise. The safeguard assessments will then be done in line with the agreed categorization.

D.2 EA Procedures

Feasibility study and design

66. As described above, the second Project Component would provide support for a series of TA and consultancy activities that might indirectly, during the implementation and operational phases generate some environmental and social impacts. While conducting feasibility studies and designing new investment sub-projects, it should be taken into account that they may generate some impacts related to air and water pollution, waste generation, labor and health risks, etc. Based on that, the PMU Environmental Specialist should conduct a preliminary screening of proposed studies and sub-project design and identify those which might require an EIA and/or a simple EMP. The screening process will also allow to undertaking their preliminary environmental assessment and identify possible areas and recommendations for improving environmental performance of proposed activities by identifying opportunities for sound environmentally and/or socially positive alternatives (e.g., energy efficiency, recycling and reducing waste generation, etc.).

67. While the designing activities are considered as Category B, as such, they will not generate any adverse environmental and social impacts, if the EIA is not done appropriately, indirectly it may cause some environmental and social risks during the project implementation. If the Environmental Specialist's preliminary screening and consultation if needed with the CEP concludes that an environmental assessment (EA) should be conducted for the proposed investment activities the sub-project beneficiary has to prepare the TORs for the EA which will reviewed by the PMU Environmental Specialist to ensure it is in compliance with the national and WB safeguards policies. The TOR for EA study should be disclosed on the website of the CSDF and virtually consulted with interested parties before the award of the grant feasibility study and design of sub-project.

68. As specified above, during the sub-projects' screening, the Environmental Specialist may identify potential opportunities for environmentally sound and/or socially positive activities within the proposed sub-projects (air/water/soil pollution prevention and control technologies applying, wastes reducing and recycling, health and labor safety improving, energy efficiency increasing etc). The Environmental Specialist may make recommendations to the beneficiary in these areas.

69. Each sub-project will be prepared and processed in accordance with the following steps and procedures which are in line with both National and WB requirements:

Preparation of EA reports

70. All sub-projects classified as B will require to conduct a simple EIA and/or prepare an EMP (note: no Category A which require full EIA will be supported). The nature and scale of the EA will vary based on scale of the subproject and on the environmental sensivity of the location. The TORs for an generic EIA along with the format of an EMP along with the samples of

different TORs for various urban investment subprojects are presented in the Annex 1. For all small construction and rehabilitation activities, the EMP checklist will be administered and adopted. Annex 2 includes the format of such EMP checklist.

71. The sub-project beneficiaries and their design consultants working on their behalf submitting these sub-projects to the CSDF project for consideration will take the responsibility for preparing these safeguard reports. Technical assistance available under the CSDF project to prepare these safeguard reports will be utilized. Sub-project preparation consultants – those with appropriate knowledge, skills and experience - will be engaged to prepare these safeguard reports.

72. Once these EA reports are ready, these will be submitted to the PMU for review and further submission to the SEE. It is only after the SEE permission / clearance decision will the PMU approve the sub-project document.

Prior Review (World Bank)

73. The first three B sub-projects will need to be sent to the Bank for review and approval; subsequently, once the PMU capacity is built, the PMU will review and approve these sub-projects. Later projects will be subject to post-review by WB on a sampling basis. Also, PMU should prepare an annual report summarizing sub-projects and what SG actions were taken for them.

Disclosure

74. Once the EA documents are ready they have to be uploaded from the PMU website for disclosure. The EA document will necessarily be done in the local language. The disclosure will also be done in the website, if any, of the sub-project beneficiaries. Hard copies of the EA reports have to be submitted to the Local Councils and to key stakeholders such as Environmental and Health Authorities and local NGOs, if any. Further, there should be announcements at the Local Councils and in the mahhalas informing the local population about the availability of the EA documents and on the public consultation to be conducted. The EA public consultation should be done in about two weeks from the document disclosure. The responsibility with the EA disclosure and consultation lies with the sub-project beneficiaries and local councils, assisted by the consultants.

75. Copies of the EA reports will be made available on request both at the PMU as well as the offices of the sub-project beneficiaries.

PMU Review

76. In case of the Prior Review, the PMU after finalizing the EA process in the country and getting the SEE decision will submit the EA documents to the WB for its “No objection”. d. After receiving this from the WB the PMU will treat these sub-projects as having obtained the Bank’s safeguard clearance and will provide its own clearance as well. If not, the PMU will iterate with the Sub-

project beneficiaries and their preparation consultants to ensure that the environmental assessments are in line with the requirements of this EMF.

77. In other projects, the PMU will review the sub-projects and ensure the following:

- The key environmental impacts are adequately addressed with appropriate mitigation and monitoring measures.
- Adequate stakeholder consultation has been done by the sub-project beneficiaries and their preparation consultants in the process of finalizing the safeguard reports.
- All national policies and regulations have been complied.
- Roles and responsibilities in implementing the EMP have been clearly identified and adequate resources are allocated.

78. After its review, the PMU will approve the sub-projects and treat as having obtained the safeguard clearance. Only after obtaining the safeguard clearance, the PMU will complete the appraisal and proceed with signing of the financing agreement with the sub-project beneficiaries. As specified above the EA for these sub-projects projects will be subject to post-review by WB on a sampling basis.

D.3 Mitigation measures

79. The mitigation measures will be undertaken as a part of the sub-project implementation process to mitigate potential impacts from construction activities and those during the operational phase.

80. Annex 3 includes a consolidated table of selected sub-project types, their impacts, mitigation measures and associated monitoring measures. Identified in the EMPs environmental requirements and mitigation measures should be reflected in the bid and contract documents. The contractor will implement the mitigation and monitoring measures, and the PMC / supervision consultants and PMU will oversee their conduct and effectiveness.

81. The primary adverse impacts from the sub-projects are largely associated with small-scale civil works for infrastructure improvements. These impacts are very localized, limited in their scope, short in duration and can be addressed through management measures.

82. The approach to mitigation measures included in the project are as follows:

- Preparation of EMPs for Category B sub-projects. Both the generic and specific mitigation measures relevant to the sub-projects will be identified and included in the EMPs;
- These EMPs will include generic provisions on health and safety measures to minimize accidents during the construction.
- These EMPs will be included as a part of the bid documents as special conditions to the contract at the tendering stage.

D.4 Monitoring requirements

83. Once the sub-projects commence implementation, the PMU will monitor the EMP implementation and report to CSDF project and the World Bank on a semi-annual basis. The Implementing Agency/sub-project beneficiaries will monitor the EMP implementation with the support of the project management/supervision consultants. The contractor will implement the various EMP activities. Being an integral part of the contract documents, the contractor will be contractually bound to implement the EMP activities.

84. The World Bank staff will conduct Implementation Support Missions periodically. During these missions, the World Bank staff will visit randomly selected sub-projects and contribute to the monitoring of safeguard compliance.

D.5 Roles and responsibilities

85. Construction Contractors appointed by the Implementing Agency will be bound through their contractual obligations to implement the EMP. They will ensure that environmental safeguard compliance is maintained throughout the construction period.

86. Project Management or Supervision Consultants (PMCs or SCs) are employed by the sub-project beneficiaries to supervise the construction works on site. These Consultants will be informed about the EMP so that they can ensure that the construction contractors adhere to the same. If there are deviations in EMP implementation, these Consultants will bring it to the notice of the Implementing Agency who will inform the PMU and then the World Bank.

87. The Implementing Agency holds the responsibility for ensuring that the EMP implementation is being effectively done and environmental safeguard compliance is ensured.

E EMF INSTITUTIONAL ARRANGEMENTS

E.1 CSDF Organizational Structure

88. The organization responsible for the CSDF project – PMU – will also be responsible for the EMF. The PMU will appoint a Safeguards Officer, who will coordinate the day-to-day activities related to the EMF. He / She will also be responsible to monitor and report compliance of the various sub-projects of the CSDF to the EMF requirements.

89. This Safeguards Officer will work closely with the sub-project beneficiaries who will be responsible for the day-to-day implementation aspects and associated safeguard compliance. The Safeguards Officer will monitor the portfolio of projects financed by the CSDF project on safeguards and work with the sub-project beneficiaries in ensuring safeguard compliance.

90. Potential sub-project beneficiaries will approach the CSDF project seeking funding for particular sub-projects. It is the responsibility of these sub-project

beneficiaries to prepare necessary project documentation (Detailed Project Reports), including those pertaining to environmental and social safeguard requirements that are necessary for Category B sub-projects. It will be the responsibility of the Implementing Agency to ensure compliance with the provisions of CSDF project's EMF. The Implementing Agency will appoint a point person to co-ordinate the day-to-day activities pertaining to the EMF requirements relevant to the sub-projects under implementation.

E.2 Roles & Responsibilities

PMU's Safeguards Officer

91. The role is to implement the policies and procedures of this EMF, to respond to environmental safeguard issues of the various sub-projects that are financed and also be proactive in identifying likely safeguard issues that could be relevant in the context of its portfolio of projects.

92. The following are the responsibilities relevant to the safeguards officer:

- Maintain and keep up-to-date the EMF (screening, categorization, procedures and others) —on a day-to-day basis.
- Monitor the portfolio of sub-projects financed by CSDF project on EA, prepare status reports on a periodic basis both in the construction and operational phases, and work with the different sub-project beneficiaries in ensuring safeguard compliance.
- Engage in training and capacity-building initiatives to build awareness, knowledge and skills pertaining to safeguards management of the different sub-project beneficiaries, their consultants and contractors.
- Provide the required information to the World Bank based on their requirements.

Design Consultants

93. The roles & responsibilities of the sub-project design consultants are to ensure that the environmental assessments (EAs, EMPs) are done in line with the national and the World Bank requirements. These consultants will also ensure that the management and action plans are to be integrated with the bid/contract documents.

Construction Contractors

94. The roles & responsibilities of the construction contractors are to ensure that the outputs of the safeguards assessments (EIA&EMPs) are complied with. These contractors are the critical link as they'll have to ensure that the construction-related environmental impacts are mitigated in line with the EMPs prepared for the sub-project.

Project Management or Supervision Consultants (PMCs or SCs)

95. The roles & responsibilities of the sub-project project management or supervision consultants are to ensure that the outputs of the safeguards

assessments (EAs, EMPs) are complied by the contractor during the construction phase of the project.

E.3 Training and Capacity Building

96. Safeguard management capacity has to be strengthened in the urban sector in Tajikistan. To address this capacity constraint, CSDF project will take the leadership role in building this capacity with its sub-project beneficiaries. PMU's Safeguards Officer will be responsible for the smooth and effective conduct of safeguards training. It is fully recognized that the effectiveness of its EMF implementation is dependent on the sub-project beneficiaries' safeguards performance.

97. PMU will periodically organize both general awareness and safeguards implementation training for the sub-project beneficiaries and the contractors/consultants associated with the sub-project. Through these training, the overall safeguards management capacity will be developed. The following table gives the breakdown of the different types of training that will be done.

Table 6 Training and Capacity-building Programs

Training Required and Target Group	Purpose	Frequency
1.Environmental awareness & appreciation workshop for senior management of the GoT, PMU, and sub-project beneficiaries	To inform the senior management about the importance of the environment and know how to recognize the impacts that various funded activities may have on the environment.	½ day workshop every 6 months
2. Environmental and EMF awareness workshop for the operational staff of the PMU and sub-project beneficiaries	To inform the senior management about the importance of the environment and the requirements of the EMF at the operational level	½ day workshop every 6 months
3.EMF implementation workshop for sub-project beneficiaries, contractors and sub-project consultants	To ensure that all the stakeholders are informed about the requirements of the EMF and know how to minimize the environmental impacts that various funded activities during implementation.	1-day workshop every 6 months
4. Sub-project specific environmental training for sub-project beneficiaries, contractors and sub-project consultants	To ensure that all the stakeholders are informed about the particular environmental impacts of their sub-projects and how these should be mitigated.	Immediately after the award of the contract and prior to initiating construction

98. The training programs will be practical and will include work with realistic case studies based on the type of sub-project proposals supported by the CSDF project. The training will cover the following issues: (a) national and World Bank requirements for environmental assessment; (b) screening and scoping procedures including checklists of potential environmental impacts of the urban investments; and (c) main provisions of environmental management plans for proposed sub-projects, including mitigation and monitoring requirements. Such training will enable these target groups to recognize and assess the potential negative environmental impacts and set of measures to mitigate them.

E.4 Overall Monitoring, Reporting & Supervision

Monitoring

99. Through its Safeguards Officer, the PMU will monitor all sub-projects that it finances to ensure conformity to safeguard requirements during construction, operation and maintenance. Sub-project beneficiaries submit periodic progress reports to PMU for review. PMU's Safeguards Officer will visit to sub-project sites as and when necessary. Based on safeguard performance of different sub-projects, the PMU's Safeguards Officer will advise on the subsequent disbursements that should be done for the sub-project from the CSDF project. If it is found that there is no EMF and/or Safeguards compliance, further disbursements will be stopped until safeguards compliance is ensured.

Reporting

100. PMU will submit a semiannually report on the implementation of the EMF. This will be in the same frequency of the overall implementation progress report as well as the reporting requirements for Financial Monitoring Reports (FMR). EMF implementation progress reports will necessarily address compliance with the safeguard requirements of the various sub-projects supported by the CSDF project.

Supervision

101. PMU staff will supervise the sub-project activities supported by the EMF on a routine basis. This will be complemented by Bank supervision of the project. The Bank supervision will include the participation of Bank environmental staff in implementation review missions, as appropriate, to review progress in the implementation of the EMF.

F EMF DISCLOSURE AND PUBLIC CONSULTATION

102. The PMU has disseminated the draft summary EMF to relevant agencies for their review and comments. The full draft EMF in Russian has been posted on December 30, 2014 on the website (http://gki.tj/ru/endery_na_osudarstvennye_nvestitsionnye_roekty/) for its access to wide public. On January 20, 2015, the PMU organized a consultation on the draft EMF (see the results of the consultation meeting in the Annex 4). After the consultation, draft document was revised considering inputs from

consulted parties. The final EMF was posted on the website of the PMU and will be disclosed in the World Bank Infoshop.

G. Budgetary resources

Sub-project preparation - safeguard assessments

103. At the project design stage, funds will be required for the conduct of safeguards assessments of the sub projects. These will include doing sub-project Environmental Assessment and preparation of EMPs. Wherever necessary, the necessary permits and clearances from the appropriate / relevant Government agencies will have to be obtained. This will depend on the nature of the sub-projects being implemented.

Monitoring and reporting

104. At the construction and operation stages, the funds will be required to ensure that the environmental management measures are being implemented. While the cost of management will be integrated with the sub-project costs, the oversight, i.e. monitoring and reporting, will have to be done by the PMU.

Capacity building

105. To ensure successful EMF implementation, a series of capacity building and training activities will also have to be undertaken by the PMU with the various proponents who are implementing these sub-projects. Not only will the representatives of the proponents will have to be trained, but also their design consultants, contractors and project management / supervision consultants.

Overall budget

106. Estimated budget for sub-project preparation, proposed capacity building activities and trainings is presented in the following table.

Table 7 Estimated budget for EMF Implementation for the CSDF project

No.	Description	Amount (US$)
1	Sub-project preparation – safeguards assessment	100,000
2	Monitoring and reporting	50,000
3	Training & Capacity building	100,000
	Total:	250,000

The cost of implementing of the environmental management measures in the sub-projects will be integrated with the sub-project costs, and is not reflected in the above table.

ANNEX 1. TERMS OF REFERENCE FOR CONDUCTING AN ENVIRONMENTAL IMPACT ASSESSMENT STUDY FOR CATEGORY B SUBPROJECT

An Environmental Assessment Report Categories B projects focuses on the significant environmental issues raised by a Sub-project. Its primary purpose is to identify environmental impacts and those measures that, if incorporated into the design and implementation of a project can assure that the negative environmental effects will be minimized. The scope and level of detail required in the analysis depend on the magnitude and severity of potential impacts.

The environmental assessment report should include the following elements:

a. *Executive Summary*. This summarizes the significant findings and recommended actions.
b. *Policy, legal and administrative framework*. This section summarizes the legal and regulatory framework that applies to environmental management in the jurisdiction where the study is done.
c. *Project Description*. Describes the nature and scope of the project and the geographic, ecological, temporal and socioeconomic context in which the project will be carried out. The description should identify social groups that will be affected, include a map of the project site, and identify any off-site or support facilities that will be required for the project.
d. *Baseline data*. Describe relevant physical, biological and social condition including any significant changes anticipated before the project begins. Data should be relevant to project design, location, operation or mitigation measures.
e. *Environmental impacts*. Describe the likely or expected positive and negative impacts in quantitative terms to the extent possible. Identify mitigation measures and estimate residual impacts after mitigation. Describe the limits of available data and uncertainties related to the estimation of impacts and the results of proposed mitigation.
f. *Analysis of Alternatives*. Systematically compare feasible alternatives to the proposed project location, design and operation including the "without project" alternative in terms of their relative impacts, costs and suitability to local conditions. For each of the alternatives quantify and compare the environmental impacts and costs relative to the proposed plan.
g. *Environmental Management Plan (EMP).* If significant impacts requiring mitigation are identified, the EMP defines the mitigation that will be done, identifies key monitoring indicators and any needs for institutional strengthening for effective mitigation and monitoring to be carried out.
h. *Appendices.*

This section should include:

(i) The list of EA preparers;
(ii) References used in study preparation;
(iii) A chronological record of interagency meetings and consultations with NGOs and effected constituents;
(iv) Tables reporting relevant data discussed in the main text, and;
(v) A list of associated reports such as resettlement plans or social assessments that were prepared for the project.

Attachment 1. Environmental *Management* Plan Format

Phase	Environmental Impact	Mitigating Measure(s)	Cost		Institutional Responsibility		Remarks
			Install	***Operate***	***Install***	***Operate***	
Construction							
Operation							
Decommissioning							

Sub-borrower: ***Signature:*** ***Date:***

Attachment 2. Environmental *Monitoring* Plan Format

Phase	**What** parameter is to be monitored?	**Where** will the parameter be monitored?	**How** will the parameter be monitored?	**When** will the parameter be monitored?	**Why** is the parameter being monitored?	Cost		Institutional Responsibility	
						Install	**Operate**	**Install**	**Operate**
Baseline									
Construction									
Operation									
Decommissioning									

Sub-borrower: ***Signature:*** ***Date:***

Attachment 3: Samples of TORs for EA for different urban development sub-projects

1. Sample Terms of Reference (TORs) for an Environmental Assessment of Solid Waste Disposal Systems (Construction and Rehabilitation)

1. Introduction. State the purpose of the TORs, identify the solid waste projects/sub-projects to be assessed and explain the executing arrangements for the environmental assessment (EA).

2. Background Information. Provide pertinent background for any parties who may conduct the EA, whether they are government agencies, consultants or NGOs. Include a brief description of the major components/sub-components of the proposed project, a statement on its need and objectives, the implementing agency/sponsor, a brief history of the project (including alternatives considered), its current status and timetable, and the identities of any associated projects. Confirm if there are other projects in progress or planned within the region that may compete for the same resources. A summary description of the environmental setting should be provided.

Major components of a solid waste project include, but are not limited to: municipal refuse vehicles, transfer stations and transfer trucks; septage collection vehicles and special treatment/disposal systems; workshop equipment and facilities for improved maintenance and repair of the municipal fleet, closure of unsanitary open dumps; refuse disposal by sanitary landfill; resource recovery by composting; pilot tests of alternative refuse collection methods; technical assistance in planning collection routes and methods and in the design and operation of disposal systems; and institutional and financial strengthening of organizational entities authorized to provide solid waste management service

3. **Objectives**. Summarize the general scope of the EA related to the screening category (as it appears in the Integrated Safeguard Data Sheet -- ISDS) and discuss its timing in relation to other aspects of project preparation, design, and execution. Identify constraints, if any, regarding the adequacy of existing environmental baseline data and needs to phase in additional data collection (e.g., seasonal rainfall, river flows) and assessment efforts to avoid hindering the project development schedule.

4. EA Requirements/Regulations. Identify regulations and guidelines that will govern the conduct of the assessment or specify the content of its report. They may include any or all of the following:

- National laws and/or regulations on environmental assessments;
- Regional, provincial or communal environmental assessment regulations; and
- EA regulations of any other financing organizations involved in the project.
- World Bank Operational Policy 4.01: "Environmental Assessment," and other pertinent environmental/social safeguard policies, eg, resettlement (land acquisition. Etc.); and the Disclosure Handbook (December 2002).
- Environmental requirements of any co-financiers; and,
- Relevant international environmental agreements/conventions to which the country is a party

Note: the project may include a board array of activities, some of which may cause direct adverse environmental and social impacts and are consequently likely to be classified as category A or B; others may cause very limited impacts and are therefore likely to be category C. These TORs focus upon types of activities likely to be classified A or B and which would therefore require an EA.

Identify design or operating standards which project components must meet to be in

compliance with environmental safeguards, eg, effluent discharge limitations, air emission standards, receiving water quality standards, and occupational health and safety requirements.

5. Study Area and Likely Impacts. Specify the boundaries of the study area for the assessment: the drainage area, water catchments; the tracts of land on which waste is to be placed and processed; marine, estuarine or inland waters that may be influenced by effluent discharges; sites for the disposal of solid waste generated in the treatment process; if incineration is proposed, include the air shed that may be affected and consequences to communities.

Summarize the outcome of the scoping exercise in which a broad assessment will have been made of the major biophysical and social impacts likely to be generated by the project.

6. Scope of Work. In some cases, the tasks to be carried out by a consultant will be known with sufficient certainty to be specified in the TORs. In other cases, information deficiencies need to be identified and resolved or specialized field studies or modeling activities performed to assess impacts; accordingly, the consultant should define particular tasks in more detail for contracting agency review and approval.

Task 1. Description of the Proposed Project.

(a) For project improvements/rehabilitation to solid waste collection, include: physical layout of the neighborhoods to receive improved collection; social, cultural and economic conditions of the neighborhoods to receive improved collection; and description of the project elements, including method of collection proposed, pilot tests to confirm the proposed collection method as appropriate, pre-implementation activities of public education and involvement, cost recovery systems, equipment specifications and procurement plans, implementation plans, operation and maintenance procedures, responsible parties for each aspect of the system.

(b) For project improvements/rehabilitation to solid waste transfer and disposal, include: physical layout of the overall urban area to be served by transfer and/or disposal facilities, including mapping of all major roads; strategic siting of the facilities, including economic justification for the overall strategic plan of collection service areas, direct haul routes, transfer stations, transfer routes and disposal locations; physical, ecological and demographic setting of facilities, including surrounding land use characteristics, proximity to residential neighborhoods, location of public water supply sources and private wells, direction of ground water flow, uses of surface waters, prevailing wind direction; and description of the project elements, including layout of proposed facilities (e.g., fencing, buildings, weighbridges, roads, ramps, drainage, gas and leachate control systems, monitoring wells); construction schedule, operating plans, closure plans, long-term monitoring plans, and responsible parties.

Provide maps (at the appropriate scale) where necessary.

Task 2. Description of the Environment.

(a) For project improvements to collection systems:

Physical environment: neighborhood layout, showing locations for communal containers, stops for trucks during block collection, or streets served by curb-side collection; conditions of road or walkway access for collection equipment; and climate and meteorology, as it affects refuse containment and frequency of collection.

Biological environment: terrestrial communities in areas affected by rehabilitation or construction, facility siting, land application or disposal; aquatic communities in impacted waters; rare or endangered species and sensitive habitats, including parks and reserves; significant natural habitats; species of commercial importance in land application sites and receiving waters.

Socio -cultural environment: present and projected land use and ownership; population density and demographic level by neighborhood; community structure of local leaders and traditional public involvement process; employment and other activities indicating patterns of movement to and from neighborhood; education level with regard to sanitation and public health; and customs and attitudes relative to cooperation with collection system.

(b) For project improvements to transfer and disposal facilities:

Physical environment: location of proposed facilities with regard to nature of surrounding land uses and proximity to homes and other establishments; existing road and traffic conditions in the area of proposed facilities, versus proposed road and traffic conditions; existing topography and proposed changes, including area which will be affected by any visible aesthetic impacts; soils and geology; surface and ground water hydrology, and hydraulic connections between the proposed sites and receiving waters down gradient of the sites; existing and proposed uses of receiving waters, including location of private and public water supply wells and intakes; climate and meteorology, including prevailing wind direction.

Biological environment: flora and fauna; sensitive habitats (e.g., wetlands delineation); and rare, endangered, or commercially important species.

Socio -cultural environment: past uses of sites and consideration of any historic significance; land use and demographic character of surrounding neighborhoods; planned development activities; education, awareness, and sensitivity of public to proposed siting of facilities; and public concerns over traffic, insects, noise, dust, odor, smoke, or aesthetic issues.

This section should indicate the accuracy, reliability and sources of the data and consequences for assessing impacts and their mitigation

Task 3. Legislative and Regulatory Considerations:

Describe national laws and local ordinances that delineate the solid waste management responsibility and authority delegated to local government. Describe national laws and guidelines that define the design and operating standards that local governments are to meet in the conduct of their responsibilities. Include description of any environmental standards to be met, including any requirements for submission of environmental monitoring data or environmental impact assessment statements by local governments to the national government. Describe local ordinances that govern citizen responsibility to participate in and cooperate with the solid waste system. If transboundary impacts are likely, relevant international conventions should be described.

Discuss the extent to which the local government uses education, inspection and enforcement to assure compliance with the available regulations. Describe the technical assistance, environmental monitoring, and regulatory enforcement activities provided by national and provisional government as a support to local government operations and actions.

Task 4. Determination of the Potential Impacts of the Proposed Project.

. For solid waste projects, there are numerous potential impacts to be reviewed as a part of design. For the most part, well-conceived designs will minimize adverse impacts. Also, altering operating practices can minimize many potential impacts.

Particular attention should be given to: the extent to which receiving water quality standards will be achieved with the proposed level of treatment; projected beneficial changes, including anticipated gains for sanitation and public health.

. Where some potential impacts would be environmentally significant over the long term, special studies conducted as a part of environmental impact assessment are recommended. Specifically, prior to design of a land disposal site, borings need to be drilled both on-site and off-site to assess the character of soils and geology and confirm the flow of ground water. Data from these borings coupled with information on rainfall and infiltration should be used to make a simple determination of the quantity of leachate that could be generated and released from the land disposal site and its potential effect on the nearest receiving water.

Task 5. Development of an Environmental Management Plan.

For the proposed project, recommend feasible and cost-effective mitigation measures to prevent or reduce significant negative impacts to acceptable levels. Include measures for emergency response to accidental events (e.g., ruptures, leaks, tanker truck or ship accidents,

fires, explosions), as appropriate.

Estimate the impacts and costs of the mitigation measures, and of the institutional and training requirements to implement them. Assess compensation to affected parties for impacts that cannot be mitigated. Prepare an EMP including proposed work programs, budget estimates, schedules, staffing and training requirements, and other necessary support services to implement the mitigating measures, monitoring, etc.

The TOR should state that proposed mitigating measures should be agreed by the concerned and affected parties before they are submitted as recommendations in the EMP.

Prepare a detailed plan to monitor the implementation of mitigating measures and the impacts of the project during construction and operation. Include in the plan an estimate of capital and operating costs and a description of other inputs (such as training and institutional strengthening) needed to conduct it. For solid waste projects that include a land disposal facility, environmental monitoring should include gas and ground water monitoring wells and a regular schedule of monitoring for key indicators of contamination. If the land disposal site has a gas collection and ventilation system, periodic monitoring of the composition of gas being discharged from the vents is recommended. Also recommended is periodic monitoring, on-site and off-site with a portable meter, of the ambient air's oxygen and combustible gas levels. Similarly, for projects that include an incinerator or resource recovery plan, environmental monitoring should include air quality monitoring of stack gases.

Depending upon local conditions and predicted impacts upon communities/individuals, there may be need for a Resettlement Policy Framework and/or Resettlement Action Plan.

Review the authority and capability of institutions at local, provincial/regional, and national levels and recommend steps to strengthen or expand them so that the EMP may be effectively implemented. The recommendations may extend to new laws and regulations, new agencies or agency functions, intersectoral arrangements, management procedures and training, staffing, operation and maintenance training, budgeting, and financial support.

An outline of the contents of the EMP to be included in the project's Operational Manual should be provided along with environmental/social protection clauses for contracts and specifications.

Task 6. Assist in Inter-Agency Coordination and Public/NGO Participation. The Consultant will assist the government in coordinating the EA with relevant agencies and the government will consult with affected groups likely to be affected by the proposed project and with local NGOs on the environmental and social aspects of the proposed project.

For projects categorized A, these groups will be consulted at least twice: in meetings held during preparation before the TORs for the EA are finalized and when a draft EA is available (a summary of the EA will be available prior to the meeting). For projects categorized B, these groups should be consulted once a draft EA has been prepared and a summary of the EA conclusions will, be made prior to the meeting. For both A and B category projects the draft EA should also be available in a public place accessible to affected groups and local NGOs.

Relevant materials will be provided to affected groups in a timely manner prior to consultation and in a form and language that is understandable and accessible to the groups being consulted. The Consultant should maintain a record of the public consultation and the records should indicate: means other than consultations) e.g., surveys) used to seek the views of affected stakeholders; the date and location of the consultation meetings, a list of the attendees and their affiliation and contact address; and, summary minutes..)

7. Report. Provide an EA report that is concise and limited to significant environmental issues. The main text should focus on findings, conclusions and recommended actions, supported by summaries of the data collected and citations for any references used in interpreting those data. Detailed or uninterrupted data are not appropriate in the main text and should be presented in

appendices or a separate volume. Unpublished documents used in the assessment may not be readily available and should also be assembled in an appendix. Organize the environmental assessment report according to the outline below. *(This is the format suggested in OP 4.01; the TORs may specify a different one to satisfy national agency requirements as long as the topics required in the Bank's directive are covered):*

- Executive Summary
- Policy, Legal and Administrative Framework
- Description of the Proposed Project
- Description of the Environment
- Significant Environmental Impacts
- Analysis of Alternatives
- Environmental Management Plan, incl. mitigation, monitoring, capacity development and training and implementation schedule and costs; include environmental protection clauses for incorporation in contract agreements
- Inter-Agency and Public/NGO Consultation
- List of References
- Appendices:
  - List of Environmental Assessment Preparers;
  - Records of Inter-Agency and Public/NGO Communications;
  - Data and Unpublished Reference Documents:

8. Consulting Team. For solid waste projects, an optimum consulting team would include the following, in order of priority: civil engineers with experience in solid waste collection, transport, recycling and disposal; hydrogeologists with experience in soils science/ leachate and ground water pollution control; sociologists with experience in community participation in project design and operation; land use planners with experience in facility siting; ecologists with EA experience in facility siting; and air pollution control specialists.

Note: the team will be required to work closely with specialists undertaking the social analysis and to define arrangements for the final report, especially if the EA and social analysis are to be combined in one report

9. Schedule. This section will specify dates for progress reviews, interim and final reports, and other significant events.

10. Other Information. Include here lists of data sources, project background reports and studies, relevant publications, and other items to which the consultant's attention should be directed.

2. Sample Terms of Reference (TORs) for an Environmental Assessment of Housing Projects (construction and rehabilitation)

1. Introduction. State the purpose of the TORs, identify the new projects/sub-projects or rehabilitation activities to be assessed and explain the executing arrangements for the environmental assessment (EA).

2. Background Information. Provide pertinent background for any parties who may conduct the EA, whether they are government agencies, consultants or NGOs. Include a brief description of the major components/sub-components of the proposed project, a statement on its need and objectives, the implementing agency, a brief history of the project (including alternatives considered), its current status and timetable, and the identities of any associated projects. Identify other projects in progress or planned within the region which may compete for the same resources.

Major types of projects to be described include, as appropriate: traditional public housing, government assisted private housing, upgrading of existing informal housing and new sites and services projects.

3. Objectives. Summarize the general scope of the EA and discuss its timing in relation to other aspects of project preparation, design, and execution. Identify constraints, if any, regarding the adequacy of existing environmental baseline data and needs to phase additional data collection (e.g., seasonal rainfall, river flows, flooding, natural habitats, etc.) and assessment efforts to avoid hindering the project development schedule.

4. EA Requirements. Identify laws, regulations and guidelines that will govern the conduct of the assessment or specify the content of its report. They may include any or all of the following:

- National laws and/or regulations on environmental assessments;
- Regional, provincial or communal environmental assessment regulations; and
- EA regulations of any other financing organizations involved in the project.
- World Bank Operational Policy 4.01: "Environmental Assessment," and other pertinent environmental/social safeguard policies, eg, resettlement (land acquisition), natural habitats, etc.

Note: housing projects may include a board array of components, some of which may cause direct adverse environmental and social impacts and are consequently likely to be classified as category A or B; others may cause very limited impacts and are therefore likely to be category C. These TORs focus upon those projects likely to be classified A or B and which would therefore require an EA under provisions of OP 4.01. Accordingly, TORs will have to be crafted to address the particular impacts

- International agreements/conventions on environment to which the borrowing country is a signatory.

Identify design or operating standards which project components must meet to be in compliance with environmental safeguards, eg,, effluent discharge limitations, , receiving water quality standards, air emission standards and zoning, drainage and building codes, etc.

5. **Study Area.** Specify the service area of the project, including its area of influence, eg, increased transport, solid waste management, drainage, etc. and proposed inrteconnections.

6. Scope of Work. In some cases, the tasks to be carried out by a consultant will be known with sufficient certainty to be specified in the TORs. In other cases, information deficiencies need to be identified and resolved or specialized field studies or modeling activities performed to assess impacts; accordingly, the consultant should define particular tasks in more detail for contracting agency review and approval.

Task 1. Description of the Proposed Project. Provide a full description of the project: location; general layout, including description and drawings/diagrams for rehabilitation/new components, including building materials; land ownership and characteristics (eg, flooding potential, hazards, seismicity, use of land for waste disposal, industrial or extractive activities); population served, present and projected; adjacent communities/industries to site; existing/new roads or other supportive infrastructure; energy needs and source of supply; anticipated influent and effluent characteristics (depending upon level of treatment) and solid wastes; pre-construction and construction activities (including equipment used for earthmoving operations, handling of waste materials such as oil, borrow pits); transport and disposal of asbestos or other toxic waste in the case of rehabilitation projects, schedule, staffing and support facilities and services; operation and maintenance activities; and, required off-site investments.

Task 2. Description of the Environment. Assemble, evaluate and present relevant baseline data on the environmental characteristics of the development and area of influence. Include information on any changes anticipated before the project commences.

(a) Physical environment: geology (including seismic characteristics), topography and soils and geotechnical considerations (general description for overall study area, including potential for soil erosion); temperature (effects of vegetation removal), rainfall and runoff characteristics, flooding and hazard potential; groundwater characteristics; description of runoff and drainage, receiving waters (identity of streams, lakes, or marine waters; annual average discharge or current data by month, water quality; existing discharges or withdrawals). Noise disturbance

(b) Biological environment: terrestrial habitats in areas affected by construction, facility siting, use for disposal of wastes; aquatic, estuarine or marine habitats in affected waters; rare or endangered species; sensitive habitats, including parks or reserves, significant natural habitats; species of commercial importance in/near the land site(s) and receiving waters.

(c) Sociocultural environment: present and projected population; present land use/ownership; planned development activities; community structure; present and projected employment by industrial category; distribution of income, goods and services; recreation; public health; cultural properties; indigenous peoples; and customs. Potential for traffic accidents.

Task 3. Legislative and Regulatory Considerations. Describe the pertinent laws, regulations and standards governing environmental quality, pollutant discharges to surface waters and land and to public sewers, building codes of practice, protection of sensitive areas and endangered species, siting, land use control, etc., at international, national, regional and local levels (The TORs should specify those that are known and require the consultant to investigate for others.

Task 4. Determination of the Potential Impacts of the Proposed Project. In this analysis, distinguish between significant positive and negative impacts, direct and indirect impacts, and immediate and long-term impacts. Identify impacts that are unavoidable or irreversible. Wherever possible, describe impacts quantitatively, in terms of environmental costs and benefits. Assign economic values when feasible. Characterize the extent and quality of available data, explaining significant information deficiencies and any uncertainties associated with predictions of impact. Provide TORs for studies to obtain the missing information.

Special attention should be given to:

- Siting: sensitive issues eg, displacement of prime agricultural land and other land uses; impacts upon drainage patterns, vegetation removal and wetlands and other habitats; hazardous natural or man-made conditions; dislocation of resident populations; historic or cultural resources
- Construction: degradation of natural habitats; increase of erosion/flooding (hazard

vulnerability); depletion of groundwater, sewage disposal, landscaping, material disposal (especially toxic wastes such as asbestos), etc.

- Overloading of existing infrastructure and services and depletion of resources, eg, lumber, fuel or overtaxing of industries such as brick-making
- Dislocation of existing residents.

Task 5. Analysis of Alternatives to the Proposed Project. Describe alternatives that were examined in the course of developing the proposed project and identify other alternatives that would achieve the same objectives. The concept of alternatives extends to siting and design, technology selection, rehabilitation/construction techniques and phasing, and operating and maintenance procedures for collection systems, treatment works, disposal and sludge management. Compare alternatives in terms of potential environmental impacts, land and energy requirements, capital and operating costs, reliability, suitability under local conditions, and institutional, training, and monitoring requirements. When describing the impacts, indicate which are irreversible or unavoidable and which may be mitigated. To the extent possible, quantify the costs and benefits of each alternative, incorporating the estimated costs of any associated mitigating measures. Include the alternative of not constructing the project to demonstrate environmental conditions without it.

Task 6. Development of an Environmental Management Plan (EMP). Estimate the impacts and costs of the mitigation measures and of the institutional and training requirements to implement them. Assess compensation to affected parties for impacts that cannot be mitigated. Prepare an EMP, including proposed work programs, budget estimates, schedules, staffing and training requirements, and other necessary support services to implement the mitigating measures, monitoring, etc. Consider compensation to affected parties for impacts that cannot be mitigated. Include measures for emergency response to natural and accidental events (e.g., flooding, entry of raw sewage into rivers, streams, etc), and health and safety, as appropriate

Prepare a detailed plan to monitor the implementation of mitigating measures and the impacts of the project during rehabilitation/construction and operation. Include in the plan an estimate of capital and operating costs and a description of other inputs (such as training and institutional strengthening) needed to implement the plan. For projects that include a land disposal facility, environmental monitoring should include a regular schedule of monitoring the quality of surface and ground waters. Provide environmental protection clauses for application by consultants and contractors.

Review the authority and capability of institutions at local, provincial/regional, and national levels and recommend steps to strengthen or expand them so that the EMP may be effectively implemented. The recommendations may extend to new laws and regulations, new agencies or agency functions, intersectoral arrangements, management procedures and training, staffing, operation and maintenance training, budgeting, and financial support.\

Task 7. Assist in Inter-Agency Coordination and Public/NGO Participation. The Consultant will assist the government in coordinating the EA with relevant agencies and the government will consult with affected groups likely to be affected by the proposed project and with local NGOs on the environmental and social aspects of the proposed project.

For projects categorized A, these groups will be consulted at least twice: in meetings held during preparation before the TORs for the EA are finalized and when a draft EA is available (a summary of the EA will be available prior to the meeting). For projects categorized B, these groups should be consulted once a draft EA has been prepared and a summary of the EA conclusions will, be made prior to the meeting. For both A and B category projects the draft EA should also be available in a public place accessible to affected groups and local NGOs.

Relevant materials will be provided to affected groups in a timely manner prior to consultation and in a form and language that is understandable and accessible to the groups being consulted. The Consultant should maintain a record of the public consultation and the records should indicate: means other than consultations) eg, surveys) used to seek the views of affected stakeholders; the date and location of the consultation meetings, a list of the attendees and their affiliation and contact address; and, summary minutes.

7. Report. Provide an EA report that is concise and limited to significant environmental issues. The main text should focus on findings, conclusions and recommended actions, supported by summaries of the data collected and citations for any references used in interpreting those data. Detailed or uninterrupted data are not appropriate in the main text and should be presented in appendices or a separate volume. Unpublished documents used in the assessment may not be readily available and should also be assembled in an appendix. Organize the environmental assessment report according to the outline below. (This is the format suggested in OP 4.01; the TORs may specify a different one to satisfy national agency requirements as long as the topics required in the Bank's directive are covered):

- •Executive Summary
- Policy, Legal and Administrative Framework
- Description of the Proposed Project
- Description of the Environment
- Analysis of Alternatives
- Environmental Management Plan, incl. mitigation, monitoring, capacity development and training and implementation schedule and costs and environmental protection clauses for use by consultants and contractors.
- Inter-Agency and Public/NGO Involvement
- List of References
- Appendices: List of Environmental Assessment Preparers; Records of Inter-Agency and Public/NGO Communications;Data and Unpublished Reference Documents.

8. Consulting Team. The following specialties should be considered for the core consulting team: environmental engineering, environmental planning (or other environmental generalists); ecology (terrestrial, aquatic or marine, depending on type of discharge); water quality; soils science (for land application); wastewater utility management; and sociology/anthropology. Other specialties that may be needed depending on the nature of the project are public health, agronomy, hydrology, land use planning, limnology/oceanography (especially for outfall design), water quality modeling, and resource economics.

Note: the team will be required to work closely with specialists undertaking the social analysis and to define arrangements for the final report, especially if the EA and social analysis are to be combined in one report

9. Schedule. This section will specify dates for progress reviews, interim and final reports, and other significant events.

10. Other Information. Include here lists of data sources, project background reports and studies, relevant publications, and other items to which the consultant's attention should be directed. Examples are pre-feasibility studies, population and land use projections, land use plans, industrial activity information, water quality studies, sewerage service needs surveys, public health reports, sewer system evaluations.

3. Sample Terms of Reference (TORs) for Environmental Assessment of Road Rehabilitation/Maintenance Projects

1. Introduction. State the purpose of the TORs, identify the projects/sub-projects or activities to be assessed and explain the executing arrangements for the environmental assessment (EA).

2. **Background Information**. Provide pertinent background for any parties who may conduct the EA, whether they are government agencies, consultants or NGOs. Include a brief description of the major components/sub-components of the proposed project, a statement on its need and objectives, the implementing agency, a brief history of the project (including alternatives considered), its current status and timetable, and the identities of any associated projects.

3. Objectives. Summarize the general scope of the EA and discuss its timing in relation to other aspects of project preparation, design, and execution. Identify constraints, if any, regarding the adequacy of existing environmental baseline data and needs to phase additional data collection (e.g., seasonal rainfall, river/stream flows, ambient air quality) and assessment efforts to avoid hindering the rest of the project development schedule.

4. EA Requirements. Identify regulations and guidelines that will govern the conduct of the assessment or specify the content of its report. They may include any or all of the following:

- National laws and/or regulations on environmental assessments;
- Regional, provincial or communal environmental assessment regulations; and
- EA regulations of any other financing organizations involved in the project.
- World Bank Operational Policy 4.01: "Environmental Assessment," and other pertinent environmental/social safeguard policies, eg, resettlement (land acquisition); and the Disclosure Handbook (December, 2002).

Note: this project has been classified as a category B project under the provisions of the OP 4.01.

- Identify design or operating standards which project components must meet to be in compliance with environmental safeguards, eg, air and water quality standards, and health and safety requirements; resettlement and land acquisition requirements.

5. Study Area. Specify the boundaries of the study area for the assessment: watersheds, enhanced access to sensitive/remote areas such as parks/reserves/forests, in-migration and settlement, natural resource exploitation and commercial development

6. Scope of Work. In most cases, the tasks to be carried out by a consultant will be known with sufficient certainty to be specified in the TORs. In some cases, information deficiencies need to be identified and resolved or specialized field studies performed to assess impacts; accordingly, the consultant should define particular tasks in more detail for contracting agency review and approval.

Task 1. Description of the Proposed Project: Major components of the project to be described include, as appropriate: road route(s), types, ROWs, adjustments to alignments, including earthworks; repair/replacement of bridges; widening and stabilization of embankments; improvements to drainage and service ducts; sources of materials used during proposed road works; generation of wastes and their disposal expected volume of use and traffic impacts; necessary rehabilitation activities resettlement, land acquisition and temporary re-routing of traffic, safety features; staffing and accommodation of employees, including site clearance, scheduling of project activities; road paving and road signs and markings; operation and maintenance activities (eg, clearing of ditches, prevention of erosion, especially at culverts).

Task 2. Description of the Environment. Assemble and evaluate and baseline data on the environmental characteristics of the study area. Include information on any changes anticipated before the project commences.

(a) Physical *environment*: geology (general description for overall study area); topography; soils; monthly average temperatures, rainfall and runoff characteristics; ambient air quality; surface and ground water hydrology; identity of streams, lakes, or marine waters; receiving water quality).
(b) *Biological environment*: flora and fauna; rare or endangered species within or in areas adjacent to project-related development sites and any adjustments to the present alignment; sensitive habitats, including wetlands, parks or reserves terrestrial communities in areas affected by construction, facility siting, land application or disposal; aquatic, estuarine or marine communities in affected waters; significant natural habitats; species of commercial importance in land application sites and receiving waters.
(c) *Sociocultural environment*: present and projected population; present land use/ownership; planned development activities; community structure; present and projected employment by industrial category; distribution of income, goods and services; recreation; public health; cultural properties; indigenous peoples, customs and aspirations; significant natural, cultural or historic sites, etc. Presence of HIV/AIDS and other sexually transmitted diseases

Task 3. Legislative and Regulatory Considerations. Describe the pertinent laws, regulations and standards governing water quality and use, pollutant discharges to surface waters and land, health and safety, protection of sensitive areas and endangered species, siting, land use control, etc., at international, national, regional and local levels (The TORs should specify those that are known and require the consultant to investigate for others).

Task 4. Determination of the Potential Impacts of the Proposed Project. . Identify all significant changes that the project is likely to generate. Distinguish between significant positive and negative impacts, direct, indirect and cumulative impacts, and immediate and long-term impacts. Include indirect impacts (e.g., increased access to forests and other sensitive areas and increased urbanization). Identify impacts that may occur due to accidental events (e.g., spillage of toxic materials). Identify impacts that are unavoidable or irreversible. Wherever possible, describe impacts quantitatively, in terms of environmental costs and benefits. Assign economic values when feasible. Characterize the extent and quality of available data, explaining significant information deficiencies and any uncertainties associated with predictions of impact. If necessary, provide TORs for studies to obtain the missing information

The engineering plans should reflect "best practice" in road alignment and construction to ensure that potential negative environmental impacts are minimized (e.g., through measures to prevent soil erosion, to ensure proper drainage, and provide for waste disposal such as of cut and fill material and used oil, spoil and borrow area restoration; avoidance/control resettlement, etc.).

The EA should focus on the potential for negative environmental and social impacts caused by planned and unplanned (spontaneous) in-migration of people: clearing of forest lands for agriculture; increased pressure on fuel wood, fodder and water resources; social disruptions and conflicts; threat to natural habitats and important wildlife species, etc.
Special attention should be given to:

- Air quality: air pollution from asphalt plants; dust; noise from construction, equipment and blasting.
- Land resources: landslides; erosion; roadside litter.
- Hydrology: crossing of rivers, streams, canals and ravines; foreclosure of other land uses (if new alignment proposed); landslides; erosion; roadside litter; modifications to natural drainage patterns and groundwater elevation; flashflooding.
- Water quality: river/stream and lake sedimentation; use of pesticides; fuel and oil spills; water pollution from spills or accumulated contaminants on road surfaces.
- Biological: impacts on biodiversity caused by facilitation of access to and spontaneous settlements in natural areas; impacts on coastal/wetland management; control of hunting and

poaching/wood-cutting

- Socio-economic: loss of agricultural and residual lands; if applicable, destruction of properties; loss of livelihood or other social disruption; relocation of infrastructures; unplanned settlements; noise; threat to cultural and historical sites or artifacts; demographic changes.; potential for HIV/AIDS and other sexually-transmitted diseases.

Task 5. Analysis of Alternatives to the Proposed Project. Describe alternatives that were examined in the course of developing the proposed project and identify other alternatives that would achieve the same objectives. The concept of alternatives extends to siting and design of new alignments, rehabilitation techniques and phasing, and operating and maintenance procedures. Compare alternatives in terms of potential environmental impacts, capital and operating costs (including mitigation measures and their monitoring), and institutional, training, and monitoring requirements. To the extent possible, quantify the costs and benefits of each alternative, incorporating the estimated costs of any associated mitigating measures

Task 6. Development of an Environmental Management Plan (EMP). Estimate the impacts and costs of the mitigation measures and of the institutional and training requirements to implement them. If appropriate, assess compensation to affected parties for impacts that cannot be mitigated. Prepare an EMP, including proposed work programs, budget estimates, schedules, staffing and training requirements, and other necessary support services to implement the mitigating measures, monitoring, etc. Include measures for emergency response to accidental events (e.g. entry of raw sewage or toxic wastes into rivers, streams, etc).

Prepare a detailed plan to monitor the implementation of mitigating measures and the impacts of the project during rehabilitation and operation (eg, emission and ambient levels of pollutants where these may be detrimental to human health, soil erosion, changes in the floodplain). Include in the plan an estimate of capital and operating costs and a description of other inputs (such as training and institutional strengthening) needed to implement the plan. Include a regular schedule of monitoring the quality of surface and ground waters to ensure that mitigation measures are effective. Provide guidance for reporting and enforcement and conducting environmental audits.

Depending upon local conditions and predicted impacts upon communities/individuals, there may be need for a Resettlement Policy Framework and/or Resettlement Action Plan.

Review the responsibilities and capability of institutions at local, provincial/regional, and national levels and recommend steps to strengthen or expand them so that the EMP may be effectively implemented. The recommendations may extend to new laws and regulations, new agencies or agency functions, intersectoral arrangements, management procedures and training, staffing, operation and maintenance training, budgeting and financial support.

An outline of the contents of the EMP to be included in the project's Operational Manual should be provided along with environmental/social protection clauses for contracts and specifications**.**

Task 7. Assist in Inter-Agency Coordination and Public/NGO Participation. The Consultant will assist the government in coordinating the EA with relevant agencies and the government will consult with affected groups likely to be affected by the proposed project and with local NGOs on the environmental and social aspects of the proposed project. These groups should be consulted when a draft EA is available (a summary of the EA will be available prior to the meeting). The draft EA should also be available in a public place accessible to affected groups and local NGOs being consulted.

Relevant materials will be provided to affected groups in a timely manner prior to consultation and in a form and language that is understandable and accessible to the groups being consulted. The Consultant should maintain a record of the public consultation and the

records should indicate: means other than consultations) eg, surveys) used to seek the views of affected stakeholders; the date and location of the consultation meetings, a list of the attendees and their affiliation and contact address; and, summary minutes.

7. Report. Provide an EA report that is concise and limited to significant environmental issues. The main text should focus on findings, conclusions and recommended actions, supported by summaries of the data collected and citations for any references used in interpreting those data. Detailed or uninterrupted data are not appropriate in the main text and should be presented in appendices or a separate volume. Unpublished documents used in the assessment may not be readily available and should also be assembled in an appendix. Organize the environmental assessment report according to the outline below. (This is the format suggested in OP 4.01; the TORs may specify a different one to satisfy national agency requirements as long as the topics required in the Bank's directive are covered):

- Executive Summary
- Policy, Legal and Administrative Framework
- Description of the Proposed Project
- Description of the Environment
- Significant Environmental Impacts
- Analysis of Alternatives
- Environmental Management Plan, incl. mitigation, monitoring, capacity development and training and implementation schedule and costs
- Inter-Agency and Public/NGO Consultation
- List of References
- Appendices:
    List of Environmental Assessment Preparers;
    Records of Inter-Agency and Public/NGO Communications;
    Data and Unpublished Reference Documents:

8. Consulting Team: Depending on the baseline data needed and the mitigating measures proposed, the team may include some of the following disciplines: hydrology; terrestrial/aquatic ecology/conservation; fisheries; sociology/anthropology; human geography.

Note: the team will be required to work closely with specialists undertaking the social analysis and to define arrangements for the final report, especially if the EA and social analysis are to be combined in one report

9. Schedule. This section will specify dates for progress reviews, interim and final reports, and other significant events.

10. Other Information. Include here lists of data sources, project background reports and studies, relevant publications, and other items to which the consultant's attention should be directed. Examples are pre-feasibility studies, land use plans, water quality studies.

4. Sample Terms of Reference (TORs) for an Environmental Assessment of Energy Projects

1. Introduction. This section should state the purpose of the TORs, identify the energy development projects/sub-projects to be assessed and explain the executing arrangements for the environmental assessment (EA). Energy development projects include, but are not limited to: electric power transmission systems, oil and gas pipelines, oil and gas development, geothermal development, hydroelectric facilities, and thermoelectric power plants. *Note: an executive summary should be included for concise discussion of significant findings and recommended actions.*

2. Background Information. Provide pertinent background for any parties who may conduct the EA, whether they are government agencies, consultants or NGOs. Include a brief description of the major components/sub-components of the proposed project, a statement on its need and objectives, the implementing agency/sponsor, a brief history of the project (including alternatives considered), its current status and timetable, and the identities of any associated projects and a summery of the environmental setting. Identify other projects in progress or planned within the region which may compete for the same resources.

Major components of an energy project to be described include, as appropriate: energy sources (e.g., geothermal aquifer, reservoir, oil/gas field); energy production facilities (e.g., well, platform, dam, pump); fuel delivery systems (e.g., offshore or overland pipeline, barge, tanker, highway transport, belt conveyor, aerial tramway); power generating systems (e.g., turbine, generator); transmission systems (e.g., right-of-way, switchyard, substation); pollution control systems (e.g., drilling muds and cuttings, stack gas emission control, non-point source emission control, cooling water and wastewater treatment and discharge, ash disposal); supplies (e.g., location of stocks of parts and chemicals, transport routes); staffing (e.g., numbers of workers, skill requirements); services (e.g., fire protection, security, transportation); planning for emergencies, and community involvement (e.g., worker housing during construction).). Anticipated noise levels and global impacts (greenhouse gases).

3. Objectives. Summarize the general scope of the EA related to the screening category (as it appears in the Integrated Safeguards Data Sheet -- ISDS) and discuss its timing in relation to other aspects of project preparation, design, and execution. Identify constraints, if any, regarding the adequacy of existing environmental baseline data and needs to phase additional data collection (e.g., seasonal river flows) and assessment efforts to avoid hindering the project development schedule.

4. EA Requirements/Regulations. Identify policy, regulations and guidelines that will govern the conduct of the assessment or specify the content of its report. They may include any or all of the following:

- National laws and/or regulations on environmental assessments;
- Regional, provincial or communal environmental assessment regulations;
- EA regulations of any other financing organizations involved in the project;
- World Bank Operational Policy 4.01: "Environmental Assessment," and other pertinent environmental/social safeguard policies, e.g., resettlement (land acquisition); natural habitats; and the Pollution and Abatement Handbook (1998) and Disclosure Handbook (December, 2002);
- Environmental requirements of any co-financiers; and,
- Relevant international environmental agreements/conventions to which the country is a party
- *New projects those undergoing significant rehabilitation are classified as a Category A*

projects under provisions of OP 4.01.

- Identify design or operating standards which project components must meet to be incompliance with environmental safeguards, e.g., effluent discharge limitations, air emission standards, receiving water quality standards, and occupational health and safety requirements.

5. Study Area and Likely Major Impacts. Specify the boundaries of the study area for the assessment. Where appropriate, specify the right-of-way (ROW) width and alignment for transmission lines or pipelines. Similarly, specify locations for transmission substations, oil/gas compressor or pump stations. For projects that develop energy sources, specify the entire area involved (e.g., catchments and floodplains for hydroelectric reservoirs and the production and reserve zones for oil/gas fields).

Identify adjacent or remote areas to be considered with respect to impacts of particular aspects of the project. For example, when an energy project includes only a thermoelectric power plant and does not include the oil/gas development component, transportation corridors, terminals, and remote processing locations for fuel delivery should be identified.

Summarize the outcome of the scoping exercise in which a broad assessment will have been made of the major biophysical and social impacts likely to be generated by the project.

6. Scope of Work. In some cases, the tasks to be carried out by a consultant will be known with sufficient certainty to be specified in the TORs. In other cases, information deficiencies need to be addressed or specialized field studies or modeling activities performed to assess impacts; accordingly, the consultant will be asked to define particular tasks in more detail for contracting agency review and approval.

Task 1. Describe the proposed project. Provide information on the following: location of all project-related development sites and ROW's, including offsite investments; general layout of facilities at project-related development sites; flow diagrams/drawings of facilities/operations design basis, size, capacity, flow through of unit operations, including pollution control technology; pre-construction activities; construction activities, schedule, staffing and support, facilities and services; commissioning, operation and maintenance activities, staffing and support, facilities and services; required off-site investments; life expectancy for major components.

Include the need for any resettlement plan or indigenous peoples development plan.

Provide maps at appropriate scales to illustrate the general setting of project-related development sites and ROW's, as well as surrounding areas likely to be impacted. These maps should include topographic contours, as available, as well as locations of major surface waters, roads, railways, town centers, parks and reserves, and political boundaries. Also provide (as available), maps to illustrate existing land use, including industrial, residential, commercial and institutional development, agriculture, etc.

Task 2. Description of the Environment (baseline conditions). Assemble and evaluate baseline data on the physical, biological and socioeconomic characteristics of the development area and area of influence. Include information on any changes anticipated before the project commences (e.g., agricultural value).

(a). Physical environment: geology (e.g., stratigraphy and seismic history of development areas, integrity of geological layers protecting potable groundwater supplies); topography (e.g., drainage patterns around construction areas); soils (e.g., agricultural value, potential use for lining or soil cover in residue disposal); climate and meteorology (e.g., prevailing wind patterns around stacks and other sources of emissions, precipitation patterns at residue disposal sites); ambient air quality (e.g., ability to assimilate emissions and maintain air quality standards); input from other major pollutant generators in the area, if any; surface water hydrology (e.g., downstream water resources from reservoirs, soil erosion and sedimentation potential, flood

hazard potential); water resources (e.g., adequacy of water supplies); coastal and oceanic parameters (e.g., currents in docking areas, dispersion potential at effluent discharge locations); receiving water quality (e.g., ability to assimilate effluent discharges and maintain water quality standards for desired uses); (input from major pollutant generators in the area, if any); significant pollutant sources in the area and prospect for their mitigation .

(b) Biological environment: flora (e.g., types and diversity); fauna (e.g., resident and migratory); rare or endangered species within or in areas adjacent to project-related development sites or ROW's; sensitive habitats, including wetlands, parks or reserves, significant natural habitats within or in areas downstream/down gradient of project-related development areas or ROW's (including benthic habitat in areas of offshore pipelines); species of commercial importance in areas affected by the project, including coastal areas at docking facilities.

(c) Socio-cultural environment: (both present and projected): e.g., population (i.e., full time and seasonal); land use (i.e., year-round and seasonal); planned development activities; community structure; employment and labor market; distribution of income, goods and services; recreation; public health; education; cultural properties (e.g., archaeological and historically significant sites); indigenous peoples and traditional tribal lands; customs, aspirations and attitudes.

This section should indicate the accuracy, reliability and sources of the data and consequences for assessing impacts and their mitigation.

Task 3. Legislative and Regulatory Considerations. Describe the pertinent laws, regulations and standards governing environmental quality, health and safety, protection of sensitive areas and endangered species, siting, land use control, etc., at international, national, regional and local levels. (The TORs should specify those laws, etc. that are known and those requiring the consultant to investigate). If transboundary impacts are likely, relevant international conventions should be described.

Task 4. Determination of the Potential Impacts of the Proposed Project. Predict and assess all significant impacts that the project is likely to generate, in quantitative terms as far as possible. These may include, but not be limited to, changes in the following: wastewater effluents and atmospheric emissions and solid wastes (The Pollution Prevention and Abatement Handbook (1998) should be consulted about waste characteristics of new and rehabilitated plants and means to reduce pollution emissions and effluents as part of the production process); land use, infrastructure, exposure to disease, noise, and traffic, socio-cultural behavior). Assess the impacts from changes brought about by the project on baseline environmental conditions as described under Task 2.

In this analysis, distinguish between significant positive and negative impacts, direct, indirect and cumulative impacts, and immediate and long-term impacts. Include indirect impacts from the increased power supply (e.g., industrial expansion and increased urbanization). Identify impacts that may occur due to accidental events (e.g., potential rupture of oil pipelines, leakage from a gas pipeline, blowout of an oil well, tanker collision). Identify impacts that are unavoidable or irreversible. Wherever possible, describe impacts quantitatively, in terms of environmental costs and benefits. Assign economic values when feasible.

Impact analysis for energy projects should be divided between construction impacts and operation impacts. For example, for pipelines there are construction impacts of land clearing (e.g., loss of vegetative habitat for wildlife, displacement of people) and operation impacts of pipeline maintenance (e.g., use of herbicides). For thermoelectric power plants, there are construction impacts of earthmoving, displacement of communities/individuals, housing construction workers and operation impacts of power plant operation (e.g., stack gas emissions and effluent discharges). Opportunities for environmental enhancement should be explored.

Characterize the extent and quality of available data, explaining significant information

deficiencies and any uncertainties associated with predictions of impact. Provide TORs for studies to obtain the missing information. For information not be obtainable until after project execution, provide TORs for studies to monitor operations over a given time period and to modify designs and/or operational parameters based upon updated impact analysis.

Task 5. Analysis of Alternatives to the Proposed Project. The EA should include a systematic analysis of feasible alternatives t meet the ultimate project objectives. This analysis may suggest designs that are sounder from an environmental perspective than the originally proposed project. Include the "no action" alternative (not constructing the project) to demonstrate environmental conditions without it. Alternatives should include the following: the "no action" alternative (as discussed above); alternative means of meeting the energy requirements; the alternative of upgrading existing facilities; alternative routes and sites; alternative design; and alternative methods of construction, including costs and reliability.

Describe how the alternatives compare in terms of: potential environmental impacts; feasibility of mitigating impacts; capital and operating costs; suitability under local conditions (e.g., skill requirements, political acceptability, public cooperation, availability of parts, level of technology); and institutional, training, and monitoring requirements. When describing the impacts of alternatives, indicate which impacts would be irreversible or unavoidable and which may be mitigated.

To the extent possible, quantify the costs and benefits of each alternative, incorporating the estimated costs of any associated mitigating measures. Describe the reasons for selecting the proposed project over the other alternatives.

Task 6. Development of an Environmental Management Plan (EMP). For the proposed project, recommend feasible and cost-effective measures to prevent or reduce significant negative impacts to acceptable levels. Include measures to address emergency response requirements for accidental events (The Pollution Prevention and Abatement Handbook provides information on treatment technologies, emission and effluent guidelines and monitoring and reporting).

Estimate the impacts and costs of those measures, and of the institutional and training requirements to implement them. Consider compensation to affected parties for impacts that cannot be mitigated. Prepare a management plan including proposed work programs, budget estimates, schedules, staffing and training requirements, and other necessary support services to implement the mitigating measures. Provide environmental protection clauses for application by contractors and consultants.

The TOR should state that proposed mitigating measures should be agreed by the concerned and affected parties before they are submitted as recommendations in the EMP

Prepare a detailed plan to monitor the implementation of mitigating measures and the impacts of the project of other inputs (such as training and institutional strengthening) needed to conduct it during construction and operation. Include in the plan an estimate of capital and operating costs and a description of other inputs (such as training and institutional strengthening) needed to implement the plan.

Depending upon local conditions and predicted impacts upon communities/individuals, there may be need for a Resettlement Policy Framework and/or Resettlement Action Plan

Review the authority and capability of institutions at local, provincial/regional, and national levels and recommend steps to strengthen or expand them so that the management and monitoring plans in the environmental assessment are likely to be implemented. The recommendations may extend to new laws and regulations, new agencies or agency functions, intersectoral arrangements, management procedures and training, staffing, operation and maintenance training, budgeting, and financial support.

An outline of the contents of the EMP to be included in the project's Operational Manual should be provided along with environmental/social protection clauses for contracts and

specifications.

Task 7. Assist in Inter-Agency Coordination and Public/NGO Participation. The Consultant will assist the government in coordinating the EA with relevant agencies and the government will consult with affected groups likely to be affected by the proposed project and with local NGOs on the environmental and social aspects of the proposed project. These groups will be consulted at least twice: in meetings held during preparation before the TORs for the EA are finalized and when a draft EA is available (a summary of the EA will be available prior to the meeting). The draft EA should also be available in a public place accessible to affected groups and local NGOs

Relevant materials will be provided to affected groups in a timely manner prior to consultation and in a form and language that is understandable and accessible to the groups being consulted. The Consultant should maintain a record of the public consultation and the records should indicate: means other than consultations) eg, surveys) used to seek the views of affected stakeholders; the date and location of the consultation meetings, a list of the attendees and their affiliation and contact address; and, summary minutes

7. Report. Provide an EA report which is concise and limited to significant environmental issues. The main text should focus on findings, conclusions and recommended actions, supported by summaries of the data collected and citations for any references used in interpreting those data. Detailed or uninterrupted data are not appropriate in the main text and should be presented in appendices or a separate volume. Unpublished documents used in the assessment may not be readily available and should also be assembled in an appendix. Organize the environmental assessment report according to the outline below. *(This is the format suggested in OP 4.01; the TORs may specify a different one to satisfy national agency requirements as long as the topics required in the Bank's OP are covered):*

- Executive Summary
- Policy, Legal and Administrative Framework
- Description of the Proposed Project
- Description of the Environment
- Significant Environmental Impacts
- Analysis of Alternatives
- Environmental Management Plan, incl. mitigation, monitoring, capacity development and training and implementation schedule and costs; include environmental clauses for incorporation in contract agreements
- Inter-Agency and Public/NGO Consultation
- List of References.
- Appendices:
  - List of Environmental Assessment Preparers
  - Records of Inter-Agency and Public/NGO Communications
  - Data and Unpublished Reference Documents

8. Consulting Team. The EA requires interdisciplinary analysis. The general skills required of an environmental assessment team are: environmental management planning, ecology, hydrology/hydrogeology, air quality analysis, and water quality analysis. For an energy project, the project team will include specialists appropriate to the type of components in the energy project (e.g., for offshore pipelines, an oceanographer and marine biologist; for transmission lines, a terrestrial biologist; for thermoelectric power plants, an air quality modeler and aquatic biologist; for hydroelectric projects, a hydrologist and aquatic biologist). When possible, the TOR should provide an estimate of staff weeks/months required.

Note: the team will be required to work closely with specialists undertaking the social analysis and to define arrangements for the final report, especially if the EA and social analysis

are to be combined in one report.

9. Schedule. This section will specify dates for progress reviews, interim and final reports, and other significant events.

10. Other Information. Include here lists of data sources, project background reports and studies, relevant publications, and other items to which the consultant's attention should be directed.

5. Sample Terms of Reference (TORs) for an Environmental Assessment of Electrification Projects (construction and expansion).

1. Introduction. State the purpose of the TORs, identify the electrification projects/sub-projects to be assessed and explain the executing arrangements for the environmental assessment (EA). Such projects may improve the efficiency and expand the existing system or bring electricity to an area with no electricity facilities. The facilities may include all phases of the electrical system, from generation to consumer.

2. Background Information. Provide pertinent background for any parties who may conduct the EA, whether they are government agencies, consultants or NGOs. Include a brief description of the major components/sub-components of the proposed project, a statement on its need and objectives, the implementing agency, a brief history of the project (including alternatives considered), its current status and timetable, and the identities of any associated projects

Major components of an electrification project to be described include, as appropriate: transformers, transformation lines, substations, distribution lines, distribution transformers, secondary distribution lines, services to consumers and meters. The locations of the transformers and substations and routes of the transmission lines (preferred and alternatives and ROW) should be detailed and safety aspects included. Evaluation of alternative energy sources should be provided and access routes for equipment stipulated, along with proposed use of pesticides for control of vegetation and worker camp sites, if any.

3. Objectives. Summarize the general scope of the EA and discuss its timing in relation to other aspects of project preparation, design, and execution. Identify constraints, if any, regarding the adequacy of existing environmental baseline data and needs to phase additional data collection (e.g., animal movements, natural habitats) and assessment efforts to avoid hindering the rest of the project development schedule.

4. EA Requirements. Identify regulations and guidelines that will govern the conduct of the assessment or specify the content of its report. They may include any or all of the following:

- National laws and/or regulations on environmental assessments;
- Regional, provincial or communal environmental assessment regulations; and
- EA regulations of any other financing organizations involved in the project.
- World Bank Operational Policy 4.01: "Environmental Assessment," and other pertinent environmental/social safeguard policies, eg, resettlement (land acquisition); natural habitats; and the Disclosure Handbook (2002).

Note: the project may include a board array of activities, some of which may cause direct adverse environmental and social impacts and are consequently likely to be classified as category A or B; others may cause very limited impacts and are therefore likely to be category C. These TORs focus upon types of agriculture likely to be classified A or B and which would therefore require an EA.

Identify design or operating standards which project components must meet to be incompliance with environmental safeguards, eg,, protection of natural habitats, resettlement/land acquisition and occupational health and safety requirements.

5. Study Area. Specify the boundaries of the study area for the assessment: the right-of-way (ROW) width and alignment for transmission lines: locations for transformers and substations; and, proposed interconnections and existing electrical facilities.

6. Scope of Work. In some cases, the tasks to be carried out by a consultant will be known with sufficient certainty to be specified in the TORs. In other cases, information deficiencies need to be addressed or specialized field studies or modeling activities performed to assess impacts; accordingly, the consultant will be asked to define particular tasks in more detail for contracting agency review and approval.

Task 1. Describe the proposed project. Provide information on the following: location of all project-related development sites and ROW's; general layout of facilities at project-related development sites; diagrams of facilities/operations design; pre-construction activities; construction activities, schedule, staffing and support, facilities and services; operation and maintenance activities, staffing and support, facilities and services; required off-site investments; life expectancy for major components.

Provide maps at appropriate scales to illustrate the general setting of project-related development sites and ROW's, as well as surrounding areas likely to be impacted. These maps should include topographic contours, as available, as well as locations of major surface waters, roads, railways, town centers, parks and reserves, and political boundaries. Also provide (as available), maps to illustrate existing land use, including agricultural, industrial, residential, commercial and institutional development, agriculture, etc.

Task 2. Description of the Environment. Assemble and evaluate baseline data on the environmental characteristics of the study area. Include information on any changes anticipated before the project commences (e.g., agricultural use and value).

(a) Physical environment: geology (general description for overall study area); topography; soils and erosion paterns; climate, including rainfall and runoff characteristics; surface and ground water hydrology; identity of streams, lakes, or marine waters; receiving water quality).

(b) Biological environment: flora (e.g., types and diversity; weeds); fauna (e.g., movements, including migration); rare or endangered species within or in areas adjacent to project-related development sites or ROW's; sensitive habitats, including wetlands, parks or reserves, significant natural habitats within or near project-related development areas or ROW's; species of commercial importance in areas affected by the project.

(c) Socio-cultural environment (both present and projected): eg, population (i.e., full time and seasonal); land use (i.e., year-round and seasonal) and ROW; planned development activities; community structure; employment and labor market; distribution of income, goods and services; recreation; public health; education; cultural properties (e.g., archaeological and historically significant sites); indigenous peoples and traditional tribal lands; customs, aspirations and attitudes.

Task 3. Legislative and Regulatory Considerations. Describe the pertinent laws, regulations and standards governing environmental quality, health and safety, protection of sensitive areas and endangered species, siting, land use control, etc., at international, national, regional and local levels. (The TORs should specify those laws, etc. that are known and those requiring the consultant to investigate.)

Task 4. Determination of the Potential Impacts of the Proposed Project. Identify all significant changes that the project is likely to generate. These may include, but not be limited to, changes in the levels of soil , loss of natural habitat and other vegetation; potential for poaching and wood harvesting; side effects of the use of pesticides; river and highway crossings; obstruction of animal movements by fencing; weeds along roadways or fences spreading to agricultural areas; and, obstruction of people using ROW and loss of land/displacement and noise. Assess the impacts from changes brought about by the project on baseline environmental conditions as described under Task 2.

In this analysis, distinguish between significant positive and negative impacts, direct, indirect and cumulative impacts, and immediate and long-term impacts. Include indirect impacts from the increased power supply (e.g., industrial expansion and increased urbanization). Identify impacts that are unavoidable or irreversible. Wherever possible, describe impacts quantitatively, in terms of environmental costs and benefits. Assign economic values when feasible.

Impact analysis for energy projects should be divided between construction impacts and operation impacts. For example, construction impacts of land clearing (e.g., loss of vegetative

habitat for wildlife, displacement of people) and housing construction workers and operation impacts of transmission line maintenance (e.g., use of herbicides).

Characterize the extent and quality of available data, explaining significant information deficiencies and any uncertainties associated with predictions of impact. Provide TORs for studies to obtain the missing information. For information not be obtainable until after project execution, provide TORs for studies to monitor operations over a given time period and to modify designs and/or operational parameters based upon updated impact analysis.

Task 5. Analysis of Alternatives to the Proposed Project. The EA should include an analysis of reasonable alternatives t meet the ultimate project objectives. This analysis may suggest designs that are sounder from an environmental perspective than the originally proposed project. Include the "no action" alternative (not constructing the project) to demonstrate environmental conditions without it. Alternatives should include the following: the "no action" alternative (as discussed above); alternative means of meeting the energy requirements; the alternative of upgrading existing facilities; alternative routes and sites; alternative design; and alternative methods of construction, including costs and reliability.

Describe how the alternatives compare in terms of: potential environmental impacts; capital and operating costs; suitability under local conditions (e.g., skill requirements, political acceptability, public cooperation, availability of parts, level of technology); and institutional, training, and monitoring requirements. When describing the impacts of alternatives, indicate which impacts would be irreversible or unavoidable and which may be mitigated.

To the extent possible, quantify the costs and benefits of each alternative, incorporating the estimated costs of any associated mitigating measures. Describe the reasons for selecting the proposed project over the other alternatives.

Task 6. Development of an Environmental Management Plan (EMP). For the proposed project, recommend feasible and cost-effective measures to prevent or reduce significant negative impacts to acceptable levels. Include measures to address emergency response requirements for accidental events.

Estimate the impacts and costs of those measures, and of the institutional and training requirements to implement them. Consider compensation to affected parties for impacts that cannot be mitigated. Prepare a management plan including proposed work programs, budget estimates, schedules, staffing and training requirements, and other necessary support services to implement the mitigating measures.

Prepare a detailed plan to monitor the implementation of mitigating measures and the impacts of the project of other inputs (such as training and institutional strengthening) needed to conduct it during construction and operation. Include in the plan an estimate of capital and operating costs and a description

. *Depending upon local conditions and predicted impacts upon communities/individuals, there may be need for a Resettlement Policy Framework and/or Resettlement Action Plan*

Review the authority and capability of institutions at local, provincial/regional, and national levels and recommend steps to strengthen or expand them so that the management and monitoring plans in the environmental assessment are likely to be implemented. The recommendations may extend to new laws and regulations, new agencies or agency functions, intersectoral arrangements, management procedures and training, staffing, operation and maintenance training, budgeting, and financial support.

An outline of the contents of the EMP to be included in the project's Operational Manual should be provided along with environmental/social protection clauses for contracts and specifications.

Task 7. Assist in Inter-Agency Coordination and Public/NGO Participation. The Consultant will assist the government in coordinating the EA with relevant agencies and the

government will consult with affected groups likely to be affected by the proposed project and with local NGOs on the environmental and social aspects of the proposed project.

For projects categorized A, these groups will be consulted at least twice: in meetings held during preparation before the TORs for the EA are finalized and when a draft EA is available (a summary of the EA will be available prior to the meeting). For projects categorized B, these groups should be consulted once a draft EA has been prepared and a summary of the EA conclusions will, be made prior to the meeting. For both A and B category projects the draft EA should also be available in a public place accessible to affected groups and local NGOs.

Relevant materials will be provided to affected groups in a timely manner prior to consultation and in a form and language that is understandable and accessible to the groups being consulted. The Consultant should maintain a record of the public consultation and the records should indicate: means other than consultations) eg, surveys) used to seek the views of affected stakeholders; the date and location of the consultation meetings, a list of the attendees and their affiliation and contact address; and, summary minutes.

7. Report. Provide an EA report which is concise and limited to significant environmental issues. The main text should focus on findings, conclusions and recommended actions, supported by summaries of the data collected and citations for any references used in interpreting those data. Detailed or uninterrupted data are not appropriate in the main text and should be presented in appendices or a separate volume. Unpublished documents used in the assessment may not be readily available and should also be assembled in an appendix. Organize the environmental assessment report according to the outline below. (This is the format suggested in OP 4.01; the TORs may specify a different one to satisfy national agency requirements as long as the topics required in the Bank's OP are covered):

- Executive Summary
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- List of References.
- Appendices:
  - List of Environmental Assessment Preparers
  - Records of Inter-Agency and Public/NGO Communications
  - Data and Unpublished Reference Documents

8. Consulting Team. The EA requires interdisciplinary analysis. The general skills required of an environmental assessment team are: environmental management planning, terrestrial/aquatic ecology, hydrology/hydrogeology, and water quality analysis. When possible, the TOR should provide an estimate of staff weeks/months required.

Note: the team will be required to work closely with specialists undertaking the social analysis and to define arrangements for the final report, especially if the EA and social analysis are to be combined in one report.

9. Schedule. This section will specify dates for progress reviews, interim and final reports, and other significant events.

10.**Other Information**. Include here lists of data sources, project background reports and studies, relevant publications, and other items to which the consultant's attention should be directed.

6. Sample Terms of Reference (TORs) for an Environmental Assessment of Wastewater Collection, Treatment, Reuse, and Disposal Systems (construction and rehabilitation)

1. **Introduction**. State the purpose of the TORs, identify the new projects/sub-projects or rehabilitation activities to be assessed and explain the executing arrangements for the environmental assessment (EA).

2. Background Information. Provide pertinent background for any parties who may conduct the EA, whether they are government agencies, consultants or NGOs. Include a brief description of the major components/sub-components of the proposed project, a statement on its need and objectives, the implementing agency, a brief history of the project (including alternatives considered), its current status and timetable, and the identities of any associated projects. Identify other projects in progress or planned within the region which may compete for the same resources.

Major components of the project to be described include, as appropriate: conduits for collection and conveyance of wastewater, pumping stations, conventional and innovative treatment works, wastewater reclamation and reuse projects, ocean outfalls, wastewater treatment sludge management facilities, a variety of small –scale sanitation systems for rural and urban areas, and urban storm water drainage projects. Water pollution control programs often include significant institution building and national water pollution control policy formulation components

3. Objectives. Summarize the general scope of the EA and discuss its timing in relation to other aspects of project preparation, design, and execution. Identify constraints, if any, regarding the adequacy of existing environmental baseline data and needs to phase additional data collection (e.g., seasonal rainfall, river flows) and assessment efforts to avoid hindering the rest of the project development schedule.

4. EA Requirements. Identify laws, regulations and guidelines that will govern the conduct of the assessment or specify the content of its report. They may include any or all of the following:

- National laws and/or regulations on environmental assessments;
- Regional, provincial or communal environmental assessment regulations; and
- EA regulations of any other financing organizations involved in the project.
- World Bank Operational Policy 4.01: "Environmental Assessment," and other pertinent environmental/social safeguard policies, eg, resettlement (land acquisition); and the Disclosure Handbook (December, 2002)

Note: the project may include a board array of activities, some of which may cause direct adverse environmental and social impacts and are consequently likely to be classified as category A or B; others may cause very limited impacts and are therefore likely to be category C. These TORs focus upon types of activities likely to be classified A or B and which would therefore require an EA.

- Identify design or operating standards which project components must meet to be in compliance with environmental safeguards, e.g.,, effluent discharge limitations, air emission standards, receiving water quality standards, and occupational health and safety requirements.

5. Study Area and Likely Major Impacts. Depending upon the study area, the assessment consists of the service area of the wastewater collection system; the tracts of land on which effluent or sludge are to be applied/recycled; marine, estuarine or inland waters which could be influenced by effluent discharge; remote sites identified for disposal of solid waste generated in the treatment process; and, if incineration is included as a sludge disposal technique,

the air shed which might be affected.

Summarize the outcome of the scoping exercise in which a broad assessment will have been made of the major biophysical and social impacts likely to be generated by the project.

6. Scope of Work. In some cases, the tasks to be carried out by a consultant will be known with sufficient certainty to be specified in the TORs. In other cases, information deficiencies need to be identified and resolved or specialized field studies performed to assess impacts; accordingly, the consultant should define particular tasks in more detail for contracting agency review and approval.

Task 1. Description of the Proposed Project. Provide a full description of the project: location; general layout; unit process description and diagram for rehabilitation/new components; population served, present and projected; number and types of connected industries; anticipated influent and effluent characteristics (depending upon primary, secondary or tertiary treatment); preconstruction and construction activities; schedule, staffing and support facilities and services; operation and maintenance activities; required off-site investments; life span; adjacent communities to site; existing/new road or other supportive infrastructure.

Task 2. Description of the Environment. Assemble, evaluate and present relevant baseline data on the environmental characteristics of the study area. Include information on any changes anticipated before the project commences.

(a) *Physical environment*: geology (general description for overall study area and details for land application sites); topography; soils (general description for overall study area and details for land application sites); monthly average temperatures, rainfall and runoff characteristics; description of receiving waters (identity of streams, lakes, or marine waters; annual average discharge or current data by month, water quality; existing discharges or withdrawals).

(b) *Biological environment*: terrestrial communities in areas affected by construction, facility siting, land application or disposal; aquatic, estuarine or marine communities in affected waters; rare or endangered species; sensitive habitats, including parks or reserves, significant natural habitats; species of commercial importance in land application sites and receiving waters.

(c) *Sociocultural environment*: present and projected population; present land use/ownership; planned development activities; community structure; present and projected employment by industrial category; distribution of income, goods and services; recreation; public health; cultural properties; indigenous peoples; and customs.

This section should indicate the accuracy, reliability and sources of the data and consequences for assessing impacts and their mitigation

Task 3. Legislative and Regulatory Considerations. Describe the pertinent laws, regulations and standards governing environmental quality, pollutant discharges to surface waters and land, industrial discharges to public sewers, water reclamation and reuse, agricultural and landscape use of sludge, health and safety, protection of sensitive areas and endangered species, siting, land use control, etc., at international, national, regional and local levels (The TORs should specify those that are known and require the consultant to investigate for others. If transboundary impacts are likely, relevant international conventions should be described.

Task 4. Determination of the Potential Impacts of the Proposed Project. In this analysis, distinguish between significant positive and negative impacts, direct and indirect impacts, and immediate and long-term impacts. Identify impacts that are unavoidable or irreversible. Wherever possible, describe impacts quantitatively, in terms of environmental costs and benefits. Assign economic values when feasible. Characterize the extent and quality of available data, explaining significant information deficiencies and any uncertainties associated with predictions of impact. Provide TORs for studies to obtain the missing information.

Special attention should be given to:

- The extent to which receiving water quality standards and/or beneficial use objectives will be achieved with the proposed type and level of treatment.
- The length of river/ stream or expanse of lake or marine waters that will be positively or negatively affected by the discharge, and the magnitude of the changes in water quality parameters.
- Projected quantitative changes in beneficial uses, such as fisheries (species composition, productivity), recreation and tourism (visitor-days, overnights, expenditures), and waters available for portable supply, irrigation, and industrial use
- Sanitation and public health benefits anticipated.

Task 5. Analysis of Alternatives to the Proposed Project. Describe alternatives that were examined in the course of developing the proposed project and identify other alternatives that would achieve the same objectives. The concept of alternatives extends to siting and design, technology selection, rehabilitation/construction techniques and phasing, and operating and maintenance procedures for collection systems, treatment works, disposal and sludge management. Compare alternatives in terms of potential environmental impacts, land and energy requirements, capital and operating costs, reliability, suitability under local conditions, and institutional, training, and monitoring requirements. When describing the impacts, indicate which are irreversible or unavoidable and which may be mitigated. To the extent possible, quantify the costs and benefits of each alternative, incorporating the estimated costs of any associated mitigating measures. Include the alternative of not constructing the project to demonstrate environmental conditions without it.

Task 6. Development of an Environmental Management Plan (EMP). Estimate the impacts and costs of the mitigation measures and of the institutional and training requirements to implement them. Assess compensation to affected parties for impacts that cannot be mitigated. Prepare an EMP, including proposed work programs, budget estimates, schedules, staffing and training requirements, and other necessary support services to implement the mitigating measures, monitoring, etc. Consider compensation to affected parties for impacts that cannot be mitigated. Include measures for emergency response to accidental events (e.g. entry of raw sewage into rivers, streams, etc), as appropriate

Prepare a detailed plan to monitor the implementation of mitigating measures and the impacts of the project during rehabilitation/construction and operation. Include in the plan an estimate of capital and operating costs and a description of other inputs (such as training and institutional strengthening) needed to implement the plan. For projects that include a land disposal facility, environmental monitoring should include a regular schedule of monitoring the quality of surface and ground waters.

Depending upon local conditions and predicted impacts upon communities/individuals, there may be need for a Resettlement Policy Framework and/or Resettlement Action Plan.

Review the authority and capability of institutions at local, provincial/regional, and national levels and recommend steps to strengthen or expand them so that the EMP may be effectively implemented. The recommendations may extend to new laws and regulations, new agencies or agency functions, intersectoral arrangements, management procedures and training, staffing, operation and maintenance training, budgeting, and financial support.

An outline of the contents of the EMP to be included in the project's Operational Manual should be provided along with environmental/social protection clauses for contracts and specifications.

Task 7. Assist in Inter-Agency Coordination and Public/NGO Participation. The Consultant will assist the government in coordinating the EA with relevant agencies and the government will consult with affected groups likely to be affected by the proposed project and

with local NGOs on the environmental and social aspects of the proposed project.

For projects categorized A, these groups will be consulted at least twice: in meetings held during preparation before the TORs for the EA are finalized and when a draft EA is available (a summary of the EA will be available prior to the meeting). For projects categorized B, these groups should be consulted once a draft EA has been prepared and a summary of the EA conclusions will, be made prior to the meeting. For both A and B category projects the draft EA should also be available in a public place accessible to affected groups and local NGOs.

Relevant materials will be provided to affected groups in a timely manner prior to consultation and in a form and language that is understandable and accessible to the groups being consulted. The Consultant should maintain a record of the public consultation and the records should indicate: means other than consultations) eg, surveys) used to seek the views of affected stakeholders; the date and location of the consultation meetings, a list of the attendees and their affiliation and contact address; and, summary minutes

7. Report. Provide an EA report that is concise and limited to significant environmental issues. The main text should focus on findings, conclusions and recommended actions, supported by summaries of the data collected and citations for any references used in interpreting those data. Detailed or uninterrupted data are not appropriate in the main text and should be presented in appendices or a separate volume. Unpublished documents used in the assessment may not be readily available and should also be assembled in an appendix. Organize the environmental assessment report according to the outline below. (This is the format suggested in OP 4.01; the TORs may specify a different one to satisfy national agency requirements as long as the topics required in the Bank's directive are covered):

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- List of References
- Appendices:
  - . List of Environmental Assessment Preparers;
  - . Records of Inter-Agency and Public/NGO Communications;
  - . Data and Unpublished Reference Documents:

8. **Consulting Team.** The following specialties should be considered for the core consulting team: environmental engineering, environmental planning (or other environmental generalists); ecology (terrestrial, aquatic or marine, depending on type of discharge); water quality; soils science (for land application); wastewater utility management; and sociology/anthropology. Other specialties that may be needed depending on the nature of the project are public health, agronomy, hydrology, land use planning, limnology/oceanography (especially for outfall design), water quality modeling, and resource economics.

Note: the team will be required to work closely with specialists undertaking the social analysis and to define arrangements for the final report, especially if the EA and social analysis are to be combined in one report

9. Schedule. This section will specify dates for progress reviews, interim and final reports, and

other significant events.

10. Other Information. Include here lists of data sources, project background reports and studies, relevant publications, and other items to which the consultant's attention should be directed. . Examples are pre-feasibility studies, population and land use projections, land use plans, industrial activity information, water quality studies, sewerage service needs surveys, public health reports, sewer system evaluations.

ANNEX 2. ENVIRONMENTAL MANAGEMENT CHECKLIST FOR SMALL CONSTRUCTION AND REHABILITATION ACTIVITIES

General Guidelines for use of EMP checklist

For low-risk topologies, such as school and hospital rehabilitation activities, the ECA safeguards team developed an alternative to the current EMP format to provide an opportunity for a more streamlined approach to preparing EMPs for minor rehabilitation or small-scale works in building construction, in the health, education and public services sectors. The checklist-type format has been developed to provide "example good practices" and designed to be user friendly and compatible with safeguard requirements.

The EMP checklist-type format attempts to cover typical core mitigation approaches to civil works contracts with small, localized impacts. It is accepted that this format provides the key elements of an Environmental Management Plan (EMP) or Environmental Management Framework (EMF) to meet World Bank Environmental Assessment requirements under OP 4.01. The intention of this checklist is that it would be applicable as guidelines for the small works contractors and constitute an integral part of bidding documents for contractors carrying out small civil works under Bank-financed projects.

The checklist has three sections:

Part 1 includes a descriptive part that characterizes the project and specifies in terms the institutional and legislative aspects, the technical project content, the potential need for capacity building program and description of the public consultation process. This section could be up to two pages long. Attachments for additional information can be supplemented when needed.

Part 2 includes an environmental and social screening checklist, where activities and potential environmental issues can be checked in a simple Yes/No format. If any given activity/issue is triggered by checking "yes", a reference is made to the appropriate section in the following table, which contains clearly formulated management and mitigation measures.

Part 3 represents the monitoring plan for activities during project construction and implementation. It retains the same format required for EMPs proposed under normal Bank requirements for Category B projects. It is the intent of this checklist that Part 2 and Part 3 be included into the bidding documents for contractors, priced during the bidding process and diligent implementation supervised during works execution.

Contents of the EMP Checklist

A. General Project and Site Information

B. Safeguards Information

C. Mitigation Measures

D. Monitoring Plan

PART A: GENERAL PROJECT AND SITE INFORMATION

SITE DESCRIPTION		
Name of site		
Describe site location		Attachment 1: Site Map [ ]Y [ ] N
Who owns the land?		
Description of geographic, physical, biological, geological, hydrographic and socio-economic context		
Locations and distance for material sourcing, especially aggregates, water, stones?		
LEGISLATION		
Identify national & local legislation & permits that apply to project activity		
PUBLIC CONSULTATION		
Identify when / where the public consultation process took place		
INSTITUTIONAL CAPACITY BUILDING		
Will there be any capacity building?	[ ] N or [ ]Y if Yes, Attachment 2 includes the capacity building program	

PART B: SAFEGUARDS INFORMATION

ENVIRONMENTAL /SOCIAL SCREENING			
	Activity/Issue	**Status**	**Triggered Actions**
Will the site activity include/involve any of the following?	A. Building rehabilitation	[ ] Yes [ ] No	See Section **A** below
	B. New construction	[ ] Yes [ ] No	See Section **A** below
	C. Individual wastewater treatment system	[ ] Yes [ ] No	See Section **B** below
	D. Historic building(s) and districts	[ ] Yes [ ] No	See Section **C** below
	E. Acquisition of land[4]	[ ] Yes [ ] No	See Section **D** below
	F. Hazardous or toxic materials[5]	[ ] Yes [ ] No	See Section **E** below
	G. Impacts on forests and/or protected areas	[ ] Yes [ ] No	See Section **F** below
	H. Handling / management of medical waste	[ ] Yes [ ] No	See Section **G** below
	I. Traffic and Pedestrian Safety	[ ] Yes [ ] No	See Section **H** below

[4] Land acquisitions includes displacement of people, change of livelihood encroachment on private property this is to land that is purchased/transferred and affects people who are living and/or squatters and/or operate a business (kiosks) on land that is being acquired.

[5] Toxic / hazardous material includes but is not limited to asbestos, toxic paints, noxious solvents, removal of lead paint, etc.

PART C: MITIGATION MEASURES

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
0. General Conditions	Notification and Worker Safety	(a) The local construction and environment inspectorates and communities have been notified of upcoming activities (b) The public has been notified of the works through appropriate notification in the media and/or at publicly accessible sites (including the site of the works) (c) All legally required permits have been acquired for construction and/or rehabilitation (d) The Contractor formally agrees that all work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment. (e) Workers' PPE will comply with international good practice (always hardhats, as needed masks and safety glasses, harnesses and safety boots) (f) Appropriate signposting of the sites will inform workers of key rules and regulations to follow.
A. General Rehabilitation and /or Construction Activities	Air Quality	(a) During interior demolition debris-chutes shall be used above the first floor (b) Demolition debris shall be kept in controlled area and sprayed with water mist to reduce debris dust (c) During pneumatic drilling/wall destruction dust shall be suppressed by ongoing water spraying and/or installing dust screen enclosures at site (d) The surrounding environment (side walks, roads) shall be kept free of debris to minimize dust (e) There will be no open burning of construction / waste material at the site (f) There will be no excessive idling of construction vehicles at sites
	Noise	(a) Construction noise will be limited to restricted times agreed to in the permit (b) During operations the engine covers of generators, air compressors and other powered mechanical equipment shall be closed, and equipment placed as far away from residential areas as possible
	Water Quality	(a) The site will establish appropriate erosion and sediment control measures such as e.g. hay bales and / or silt fences to prevent sediment from moving off site and causing excessive turbidity in nearby streams and rivers.
	Waste management	(a) Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities.

		(b) Mineral construction and demolition wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers. (c) Construction waste will be collected and disposed properly by licensed collectors (d) The records of waste disposal will be maintained as proof for proper management as designed. (e) Whenever feasible the contractor will reuse and recycle appropriate and viable materials (except asbestos)
B. Individual wastewater treatment system	Water Quality	(a) The approach to handling sanitary wastes and wastewater from building sites (installation or reconstruction) must be approved by the local authorities (b) Before being discharged into receiving waters, effluents from individual wastewater systems must be treated in order to meet the minimal quality criteria set out by national guidelines on effluent quality and wastewater treatment (c) Monitoring of new wastewater systems (before/after) will be carried out (d) Construction vehicles and machinery will be washed only in designated areas where runoff will not pollute natural surface water bodies.
C. Historic building(s)	Cultural Heritage	(a) If the building is a designated historic structure, very close to such a structure, or located in a designated historic district, notification shall be made and approvals/permits be obtained from local authorities and all construction activities planned and carried out in line with local and national legislation. (b) It shall be ensured that provisions are put in place so that artifacts or other possible "chance finds" encountered in excavation or construction are noted and registered, responsible officials contacted, and works activities delayed or modified to account for such finds.

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
D. Acquisition of land	Land Acquisition Plan/Framework	(a) If expropriation of land was not expected but is required, or if loss of access to income of legal or illegal users of land was not expected but may occur, that the Bank's Task Team Leader shall be immediately consulted. (b) The approved Land Acquisition Plan/Framework (if required by the project) will be implemented
E. Toxic Materials	Asbestos management	(a) If asbestos is located on the project site, it shall be marked clearly as hazardous material (b) When possible the asbestos will be appropriately contained and sealed to minimize exposure (c) The asbestos prior to removal (if removal is necessary) will be treated with a wetting agent to minimize asbestos dust (d) Asbestos will be handled and disposed by skilled & experienced professionals (e) If asbestos material is be stored temporarily, the wastes should be securely enclosed inside closed containments and marked appropriately. Security measures will be taken against unauthorized removal from the site. (f) The removed asbestos will not be reused
	Toxic / hazardous waste management	(a) Temporarily storage on site of all hazardous or toxic substances will be in safe containers labeled with details of composition, properties and handling information (b) The containers of hazardous substances shall be placed in an leak-proof container to prevent spillage and leaching (c) The wastes shall be transported by specially licensed carriers and disposed in a licensed facility. (d) Paints with toxic ingredients or solvents or lead-based paints will not be used
F. Affected forests, wetlands and/or protected areas	Protection	(a) All recognized natural habitats, wetlands and protected areas in the immediate vicinity of the activity will not be damaged or exploited, all staff will be strictly prohibited from hunting, foraging, logging or other damaging activities. (b) A survey and an inventory shall be made of large trees in the vicinity of the construction activity, large trees shall be marked and cordoned off with fencing, their root system protected, and any damage to the trees avoided (c) Adjacent wetlands and streams shall be protected from construction site run-off with appropriate

		erosion and sediment control feature to include by not limited to hay bales and silt fences (d) There will be no unlicensed borrow pits, quarries or waste dumps in adjacent areas, especially not in protected areas.
G. Disposal of medical waste	Infrastructure for medical waste management	(a) In compliance with national regulations the contractor will insure that newly constructed and/or rehabilitated health care facilities include sufficient infrastructure for medical waste handling and disposal; this includes and not limited to: ▪ Special facilities for segregated healthcare waste (including soiled instruments "sharps", and human tissue or fluids) from other waste disposal; and ▪ Appropriate storage facilities for medical waste are in place; and ▪ If the activity includes facility-based treatment, appropriate disposal options are in place and operational
H Traffic and Pedestrian Safety	Direct or indirect hazards to public traffic and pedestrians by construction activities	(a) In compliance with national regulations the contractor will insure that the construction site is properly secured and construction related traffic regulated. This includes but is not limited to ▪ Signposting, warning signs, barriers and traffic diversions: site will be clearly visible and the public warned of all potential hazards ▪ Traffic management system and staff training, especially for site access and near-site heavy traffic. Provision of safe passages and crossings for pedestrians where construction traffic interferes. ▪ Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement ▪ Active traffic management by trained and visible staff at the site, if required for safe and convenient passage for the public. ▪ Ensuring safe and continuous access to office facilities, shops and residences during renovation activities, if the buildings stay open for the public.

PART D: MONITORING PLAN

Activity	**What** (Is the parameter to be monitored?)	**Where** (Is the parameter to be monitored?)	**How** (Is the parameter to be monitored?)	**When** (Define the frequency / or continuous?)	**Why** (Is the parameter being monitored?)	**Who** (Is responsible for monitoring?)
1. Type of activity						
2. Type of activity						
3. Type of activity						

ANNEX 3. CONSOLIDATED TABLE OF SUB-PROJECT TYPES, IMPACTS, MITIGATION AND MONITORING ACTIONS FOR SELECTED SUB-PROJECT TYPES

Sub-Projects	Potential Impacts	Mitigation Measure	Phase	Resp. for Mitigation	Monitoring Requirements	Resp. for Monitoring
Water Supply						
Laying of New pipelines	Damage to ecosystems, endangered plant species	Selection of pipeline route to avoid habitats of endangered plant species	Design	Design Consultant	Implementation Of inspections of construction sites, operation zones;	PMU
	Pollution of soil and water at construction site with oil materials	Daily checks of machinery for leaking of oil, ban to wash machinery at construction site	Construction	Contractor Local utility services,	Check of the plan of waste removal.	State Depts. .
	Noise pollution in towns	Works performed strictly during the working hours	Construction	Contractor	Regular inspection of Construction Code norms observance	State Depts
	Reduced amenity values of the area	Proper landscaping and replanting of construction area after completion of piping works	Construction	Design Consultant and Contractor	Constant supervision and periodical check of construction sites	PMU
	Archeological "chance find"	Stopping works and calling in respective local authorities and experts	Construction	Contractor, local utility services	Check of contract documents. Construction supervision	PMU & State Depts.
Repair of pipelines	Digging of soil, damage to endangered plant species	Checking for endangered plant species on construction site, if found - replanting	Design,	Design consultant and	Supervision of construction	PMU

Sub-Projects	Potential Impacts	Mitigation Measure	Phase	Resp. for Mitigation	Monitoring Requirements	Resp. for Monitoring
	Pollution of soil and water at construction site with oil materials	Daily checks of machinery for leaking of oil, ban on wash machinery at construction site	Construction	Contractor	Constant supervision of execution of appropriate measures	PMU & State Depts. ,
	Littering of construction site with removed pipe portions and discarded insulation material	Instructions to contractor to which landfill the waste has to be delivered. If insulation contains asbestos, workers must wear protective measures – wear respirator	Construction	Contractor local utility services	Supervision of observance of measures	State Depts.
	Noise pollution in towns	Works performed strictly during the daytime	Construction	Contractor local utility services ,	Project expertise and supervision of construction	State Depts.
	Reduced amenity values of the area	Proper landscaping and replanting of construction area after completion of repair works	Construction	Design Consultant, Contractor	Check of detailed designs, bidding documents, contract supervision	State Depts.
	Archeological" chance find"	Stopping works and calling in respective local authorities and experts	Design and construction Construction	Contractor, local utility services	Check of contract documents. Construction supervision Regular contract supervision	State Depts.
Waste Water Treatment						

Sub-Projects	Potential Impacts	Mitigation Measure	Phase	Resp. for Mitigation	Monitoring Requirements	Resp. for Monitoring
Small waste water treatmnt facilities	Damage to ecosystems, endangered plant species	Selection of location to avoid habitats of endangered plant species	Design	Design Consultant	Implementation Of inspections of construction sites, operation zones;	PMU
	Pollution of soil and water at construction site with oil materials	Daily checks of machinery for leaking of oil, ban to wash machinery at construction site	Construction	Contractor Local utility	Check of the plan of waste removal.	State Depts.
	Noise pollution in towns	Works performed strictly during the working hours	Construction	Contractor	Regular inspection of Construction Code norms observance	State Depts
	Reduced amenity values of the area	Proper landscaping and replanting of construction area after completion of piping works	Construction	Design Consultant and Contractor	Constant supervision and periodical check of construction sites	PMU
	Archeological “chance find”	Stopping works and calling in respective local authorities and experts	Construction	Contractor, local utility services	Check of contract documents. Construction supervision	PMU & State Depts.
Sewage network	Damage to ecosystems, endangered plant species	Selection of pipeline route to avoid habitats of endangered plant species	Design	Design Consultant	Implementation Of inspections of construction sites, operation zones;	PMU
	Pollution of soil and water at construction site with oil materials	Daily checks of machinery for leaking of oil, ban to wash machinery at construction site	Construction	Contractor Local utility services,	Check of the plan of waste removal.	State Depts.

Sub-Projects	Potential Impacts	Mitigation Measure	Phase	Resp. for Mitigation	Monitoring Requirements	Resp. for Monitoring
	Noise pollution in towns	Works performed strictly during the working hours	Construction	Contractor	Regular inspection of Construction Code norms observance	State Depts
	Reduced amenity values of the area	Proper landscaping and replanting ofconstruction area after completion of piping works	Construction	Design Consultant and Contractor	Constant supervision and periodical check of construction sites	PMU
	Archeological "chance find"	Stopping works and calling in respective local authorities and experts	Construction	Contractor, local utility services	Check of contract documents. Construction supervision	PMU & State Depts.
Solid waste storage and disposal						
Minor works such as fencing of the existing dump yards / landfills and clearing of informal dumps	Damage to ecosystems, endangered plant species	Selection of location to avoid habitats of endangered plant species	Design	Design Consultant	Implementation Of inspections of construction sites, operation zones;	PMU
	Littering of construction site with removed portions and discarded material	Instructions to contractor to manage the waste responsibly.	Construction	Contractor	Supervision of observance of measures	State Depts.
	Archeological "chance find"	Stopping works and calling in respective local authorities and experts	Construction	Contractor	Construction supervision	State Depts.
Roads & Terminals						

Sub-Projects	Potential Impacts	Mitigation Measure	Phase	Resp. for Mitigation	Monitoring Requirements	Resp. for Monitoring
Repair of roads	Pollution of area adjacent to roads with scrap asphalt	Collection of scrap asphalt and delivery to designated landfills/dumpsites	Construction	Contractor	Supervision of construction	PMU
	Pollution of soil and water with oil products and asphalt during construction	Daily checks of machinery for leaking of oil, ban to wash machinery at construction site	Construction	Contractor	Constant supervision of execution of appropriate measures	PMU & State Depts.
	Stimulation of erosion of land	Proper landscaping of slopes and replanting of vegetation	Design, Construction	Design Consultant,	Supervision of observance of security measures	State Depts.
	Damage to the buildings and installations located in proximity to construction area	Identifying of vulnerable buildings and installations prior construction, development of appropriate technique Adherence to special work regime in proximity of vulnerable buildings	Design Construction	Contractor Design	Project expertise and supervision of construction	State Depts.
Community / Social Infrastructure						
Repair/ renovations in objects of social infrastru	Littering of construction site and adjacent areas with construction waste	Prompt collection of constructing waste and delivery to designated landfills/dumpsite	Construction	Contractor	Supervision of construction	Local utility services and construction inspectors
	Contamination	Collection of luminescent lamps	Construction	Contractor	Constant supervision	Local utility

Sub-Projects	Potential Impacts	Mitigation Measure	Phase	Resp. for Mitigation	Monitoring Requirements	Resp. for Monitoring
cture	of construction site with waste containing heavy metals Damage to human health due to exposure to asbestos containing materials	and other similar waste and delivery to designated landfills/dumpsites for subsequent reprocessing When asbestos containing Materials encountered, the workers should wear protective gear; asbestos containing waste promptly delivered to designated landfills/dumpsites	Construction	Contractor	of execution of appropriate measures Supervision of observance of security measures Project expertise and supervision of construction	services and construction inspectors Local utility services and construction inspectors
Rehabilitation of aeration lagoons	Littering of construction site and adjacent areas with construction waste Contamination of construction site with waste containing heavy metals	Prompt collection of constructing waste and delivery to designated landfills/dumpsite Collection of luminescent lamps and other similar waste and delivery to designated landfills/dumpsites for subsequent reprocessing	Construction Construction	Contractor Contractor	Supervision of construction Constant supervision of execution of appropriate measures	Local utility services and construction inspectors Local utility services and construction inspectors
Construction of	Generation of construction wastes	Keep demolition debris in controlled area and spray with	Construction	Contractor	Permanent supervision of	Local utility services and

Sub-Projects	Potential Impacts	Mitigation Measure	Phase	Resp. for Mitigation	Monitoring Requirements	Resp. for Monitoring
water reservoir		water mist to reduce debris dust			mitigation measures	construction inspectors
	Noise	Construction noise will be limited to restricted times agreed to in the permit	Construction	Contractor	Permanent supervision of mitigation measures	Local utility services and construction inspectors
		During operations the engine covers of generators, air compressors and other powered mechanical equipment should be closed, and equipment placed as far away from residential areas as possible	Construction	Constructor	Permanent supervision of Mitigation measures	Local utility services and construction inspectors
	Air pollution	Suppress dust during pneumatic drilling/wall destruction by ongoing water spraying and/or installing dust screen enclosures at site	Construction	Constructor	Permanent supervision of mitigation measures	Local utility services and construction inspectors

Annex 4. Report on Consultation on the Draft Environmental Management Framework with interested parties

Date: January 20, 2015, 10.00 AM
Venue: Dushanbe, PMU Project SCDFP

Location/ venue	**Objective**	**Invitees**	**Participants**	**Summary, conclusions and comments**
Municipal Infrastructure Development Project 56, N. Karabaev Str. Building of SUE KMK, 4-floor	1. Identify the project's potential impact on the environment 2. Providing information of WB rules, procedures and local legislation for researching environment of proposed projects 3. Discussion about acceptable mitigation measures to prevent and neutralize or minimize the project expected adverse impacts on the environment.	The PMU has posted announcement with the invitation on the State Committee on Investments and state property website on December 30, 2014, inviting for that all interested parties. Additionally the PMU has sent official invitations to the key stakeholders: State Committee for Environmental Protection State Ecological Inspectorate; Ministry of Health; and SUE KMK enterprises and Vodokonal piloting towns.	Was attended by 26 participants, representing enterprises KMK and Vodokanal pilot districts PMU staff and consultants, ICMA local experts, NGO "Municipal Development Center"consultants.	At the meeting, there were made presentations on: Project goal and objective; and Environmental Management Framework for the project. The attendees actively participated in discussions which were mainly focused on the following issues: (a) The environment protection issues related to the project potential impact on the environment; (b) acceptable mitigation measures to prevent and neutralize or minimize the project expected adverse impacts on the environment. Overall he participants endorsed the draft EMF and concluded it satisfactorily address the environmental issues under the project.